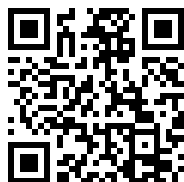
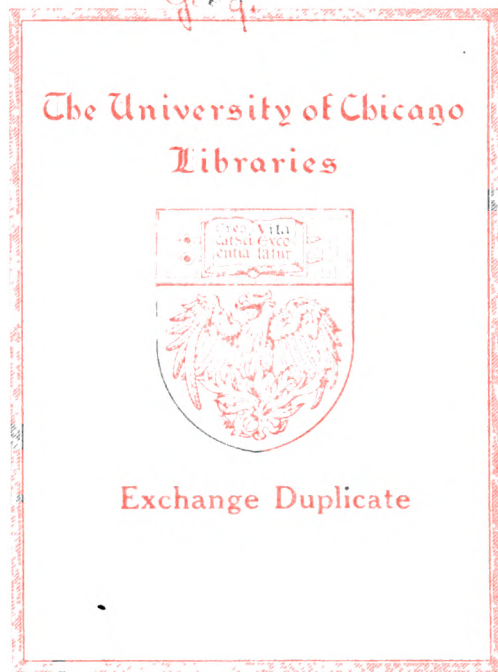

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THE
BLACK SEA PILOT.

ADMIRALTY OF THE NETHERLANDS
ODDESSA

By THE CHEVALIER TAITBOUT DE MARIGNY,
CONSUL GENERAL OF THE NETHERLANDS AT ODESSA.

176121

TRANSLATED FROM THE FRENCH,
BY ORDER OF THE LORDS COMMISSIONERS OF THE ADMIRALTY.

LONDON:
PRINTED FOR THE HYDROGRAPHIC OFFICE, ADMIRALTY;
AND SOLD BY

J. D. POTTER, *Agent for the Admiralty Charts,*
31 POULTRY, AND 11 KING STREET, TOWER HILL,
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ADVERTISEMENT.

THE following Sailing Directions for the Black Sea and Sea of Azov are from the second edition of the work entitled *Pilote de la Mer Noire et de la Mer d'Azov*, by the late Chevalier Taitbout de Marigny, Consul General of the Netherlands at Odessa, published at Constantinople in 1850. They have been translated from the original by Mr. Frederick Hill, and adapted to the series of Admiralty charts (engraved from the Russian Survey of the Black Sea under Captain Manganari, executed between the years 1832-6,) by Mr. J. W. King, Master R.N. Useful additions also have been made to the original from the Remark Books of Commander Luce, and Messrs. Turton and Johnson, Masters R.N., and especially from the notes and observations of Captain Spratt, C.B., and the Officers of H.M. surveying vessel *Spitfire*, who during the past year have made plans of the bays of Búrghaz, Varna, and Kustenjeh, and of the Sulina Mouth of the Danube, on the western shore of the Black Sea; of Bender Ereklí and Koslú on the south shore; of Anápah, on the east shore; and of Eupatoria, Kamish, Kazach, and the harbour of Balaklavah in the Krimea.

I. W.

Hydrographic Office, Admiralty,
1st July 1855.

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GLOSSARY.

The following Words in Turkish and Russian are of frequent occurrence
in the Charts of the Black Sea and the Sea of Azov.

<i>English.</i>	<i>Turkish.</i>	<i>Russian.</i>	<i>English.</i>	<i>Turkish.</i>	<i>Russian.</i>
Anchorage..	Demir-yerí .	Réyda.	Marsh.....	Chórak.....	Balloto.
Bank	Sighí	Kúmsál.	Mosque	Jámi', Mesjid	Zerkof.
Bar of a river	Tútak.....	Bára.	Mountain ..	Dágh, or Tagh	Gorá.
Battery	Tabyah	Battaría.	Mouth	Bogház, Aghz	Ustyó.
Bay	Kiúrfez	Gubá, <i>f.</i>	Mud	Chámúr	Il. Graís.
Beacon	Nishán	Bákan.	New	Yeni	Novoi, <i>m-aya, f</i>
Bight, Cove.	Kóyun	Búkhta, <i>f.</i>	North	Shemál, She-	Sévernoi, <i>m.</i>
Black	Kará.....	Chernoi, <i>m.</i>	Old	Eski	Staroi <i>m, aya, f.</i>
Bluff, Cliff ..	Yar, Kayá ..	Navolók, Utess.	Outer	Tásh, Tashrah	Vnéshnoi, <i>m.</i>
Bridge.....	Keuprí, Chek- mejh.	Most.	Peninsula... Jezirah (<i>Ar.</i>)		Polu-ostrov.
Buoy	Sháh-bandarí	Bákan.	Pilot.....	Guniji, Reis.	Pilot.
Cape, Point ..	Burún, Burnú	Muis, <i>m.</i>	Point	Burún, Dil..	Muis, <i>m.</i>
Castle.....	Kal'eh	Krépost.	Port	Límán, Iskeleh	Gávan.
Channel ...	Bogház, Yól.	Farvátter.	Promontory.	Búrnu, Burún	Noss, <i>m.</i>
Church	Kilisá	Zérkof.	Ravine		Balkha.
Clay	Balchik	Glina.	Red	Kizil, Kirmzí.	Krasnoim-aya, <i>f</i>
Deep	Derin	Glubokoi, <i>m.</i>	River	Irmak, Chaí,	Reká, Réchka.
East	Sharkí	Vostóchnoi, <i>m.</i>		Sú, Dereh.	
Entrance ...	Aghz, Bogház	Ustyó.	Rock	Kayá, Kayálík	Kámenoi.
Estuary	Bogház.....	Límán.	Saint, Holy .	Kadis, Velí..	Sviatoi, <i>m-aya, f</i>
Farm	Chiftlik	Khutor.	Sand	Kúm.....	Pesók.
Forest, Wood	Ormán	Lyess.	Sea	Deniz	Móre, <i>n.</i>
Fort, Fortress	Palankah	Krépost, <i>f.</i>	Shoal	Sighí	Mel.
Gate, Pass ..	Kapú	Varotí.	Small	Kuchúk	Maloi, <i>m.</i>
Gravel	Kabá-kúm ..	Dressvá.	South	Jenúb, Jenúbí	Yújnoi, <i>m-aya, f</i>
Great	Buyúk	Bolshoi <i>m.</i>	Spit	Dil	Kosá, Strelka.
Gulf	Keurfáz	Zalíf.	Stone	Tashlik	Kamenoi.
Hill	Tepéh	Gorá.	Strait	Bogház ..	Prolíf.
House.....	Sarai	Dom.	Tower	Kulleh	Báshna.
Inn	Khan	Traktir.	Town, City .	Shehr.	Górod.
Inner	Ich, Ichereh.	Vnútrennoi, <i>m.</i>	Tree	Aghách, Agháj	Dirivo.
Island, Islet .	Atá, Adá	Ostrov-á, <i>pl.</i>	Upper.....	Yúkari	Virkhnoi, <i>m.</i>
Isthmus. ...	Dil	Pereshéyek.	Village	Kieni, Kyöi .	Sélo.
Lake.....	Geul, or Gül.	Ozero.	Well	Kóyé, Bír... .	Kalodetz.
Land, Country	Yer, Viláyet,	Zemliá.	West	Gharb, Ghar- bí, Maghréb.	Zapadni, <i>m.</i>
Landing place	Iskeleh	Plott.	White.....	Ak, Beyáz ..	Bieloi, <i>m-aya, f</i>
Lighthouse .	Fanar	Mayák.	Windmill ..	Deyirmeh ..	Vetrennaya- Milnitsa.
Market.....	Bazár	Rihnok.			

The adjective in Russian changes its termination according to gender, as Chern-oi *m.* (black) -aya *f.*, -oe. *n.*

In the above words, in the charts, and throughout these Sailing Directions, the vowels are to be sounded as in Italian, Spanish, and German, and as in the following words in English:—

a, as in father ; *e*, as in then ; *i*, as in ravine ; *o*, as in go ; *u*, as in flute.

The consonants have the same value as in English, *g* being always sounded hard, as in get, give.

The accent marks the emphatic syllable.

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**IN THIS WORK THE BEARINGS ARE ALL MAGNETIC,
EXCEPT WHERE MARKED AS TRUE.**

**THE DISTANCES ARE EXPRESSED IN SEA MILES OF
60 TO A DEGREE OF LATITUDE.**

**A CABLE'S LENGTH IS ASSUMED TO BE EQUAL TO
100 FATHOMS.**

THE BLACK SEA.

CHAPTER I.

GENERAL REMARKS, CURRENTS AND WINDS.

1. THE Black Sea or Kara Deniz of the Turks, Chernoe More of the Russians, Schwarzes Meer of the Austrians, and Mar Nero of the Levantines, is said to have received its name from the Turks, who, being accustomed only to the navigation of the Archipelago, where the numerous islands and their convenient ports offered many places of refuge in case of danger, found the traversing of such an open expanse of waters, subject to storms, very perilous, and accordingly they expressed their fears by the epithet 'black.' The Greeks, on the contrary, gave it the name of Euxine, or Hospitable.

This sea divides the southern provinces of Russia from Anatolia, or Asia Minor, and lies between $40^{\circ} 55'$ and $46^{\circ} 37'$ N. latitude, and $27^{\circ} 30'$ and $41^{\circ} 46'$ W. longitude. Its length, from Bourghaz on the west to St. Nikolai on the east, is 627 miles, and its greatest breadth, from the Melen Su to Ovarna, is 333 miles; but it is much narrowed in the middle by the projecting peninsula of the Crimea, where its breadth does not exceed 144 miles. It is connected with the Sea of Azov by the Strait of Kertch, and with the Archipelago and the Mediterranean by the Bosphorus, the Sea of Marmora, and the Strait of the Dardanelles. By the first it receives the drainage of a part of southern Russia, and by the second it sends off the surplus waters which are not lost by evaporation. With the exception of the Yellow Sea there is probably no portion of the ocean which receives the drainage of a greater extent of country than the Black Sea. As its basin is said to comprehend 960,000 square miles, and its surface to contain only 180,000 square miles, it follows that each square mile of its surface receives the drainage of five and one third of a square mile, which will account for the small degree of saltness of its waters. Their specific gravity, compared with that of fresh water, is as 1142 to 1000; that of the Baltic is 1040, while that of the water of the Atlantic is 1288.

The shores of the Black Sea present a very varied aspect; *Aspect.* those of the Crimea, of Anatolia, and Circassia, bordered by

lofty mountains, are easily recognized, as well as Bulgaria and Rumelia, where Capes Kaliakra, Eminch, and the Balkan mountains are good landmarks, but at the mouths of the Danube and all the coast between them and the northern part of the Krimea the shore is low, and can only be seen at a short distance. The most important coast to be noticed from the number of vessels which frequent it, and as requiring the greatest caution, is that in the vicinity of the Bosphorus.

Navigation.

The navigation of the Black Sea is neither difficult nor dangerous, as it is almost entirely free from islands and rocks. Good anchorages are scarce, but there are enough to afford shelter in a sea of such small extent, so that a thorough acquaintance with them is of importance. Storms are not uncommon, but they are never of long duration. The sea then, however, is short and troublesome, more especially about the entrance of the Bosphorus.

Currents.

2. By far the greatest quantity of water is received into this sea at its north-western corner, where the Rivers Dniepr, Boug, Dniestr, and Danube fall into it. Most of the countries through which these rivers run are covered for three or four months of the year with snow; and in spring time all the moisture which has descended on them during the winter, and has been preserved in a solid state, suddenly dissolves and descends through the channels of the rivers with great velocity, producing a rapid current running to the southward.

The strong current which sets out of the Strait of Kertch owes its origin to the River Don, and to the many rivers which flow into the Sea of Azov. As it enters the Black Sea it takes a south-westerly direction, along the coast of the Krimea. Beyond Cape Khersonese it spreads out in different directions; that to the northward, towards Eupatoria and Cape Tarkan, bends to the westward, and meets the waters of the Dniepr, the Boug, and the Dniestr, which turn it away to the southward, and these uniting with the water which flows out of the Danube form a current of about one mile an hour towards the Bosphorus.* The accumulation of the waters

* In December 1852, 13 vessels bound from Odessa to Varna were wrecked near Cape Shablah, and in March 1855 six more, between that Cape and Mangali, when bound to Varna from the Krimea. As this loss may have been caused by an unusually strong current to the west or even north-west, the mariner should be on his guard against such an occurrence.

towards the Strait is so great that it is not able to carry off all of it, and a portion is pressed against the coast of Anadóli, where it gives rise to another current running to the eastward, and which makes its way along the coast of Asia, and mingles with the waters of the Sakaríyeh, the Kizil Irmak, the Yeshil Irmak, and the Chorúk, which carry it on to the eastward between Anadóli and the Caucasus, where it meets with the Rion, the Kodor, and other rivers which add considerably to its rapidity. It then follows in a north-westerly direction the Caucasian shore, receiving all the waters from the mountains and the river Kuban, as far as the Strait of Kertch, where it completes, but only to commence anew, that circular movement which has been described.

The different directions which have been thus ascribed to the Black Sea currents must not be taken as absolute on all occasions, as they are sometimes influenced by the winds or by local circumstances. There are counter currents or eddies in the bays on the coasts of Rumelia and Bulgaria, and also at a little distance from the shores of Anadóli. *Eddy Currents.*

If a vessel is becalmed on the southern coast of the Krimea, between Lampad and Cape Khersonese, or on the coast of Circassia, towards Pitsunda and Konstantine points, she will be sensibly affected by the current. When endeavouring to turn to windward she should make long boards out into the open sea, and never come in close to the coast, as the mountainous ridges of the Krimea will not favour her with any land breezes at night, and those that are found on the Caucasian coast, although pretty fresh in some places, do not reach more than 4 or 5 miles from the shore.

Vessels bound from the Bosphorus to Kaffa or Kertch, and meeting with easterly winds, should, in order to avoid the current on the southern coast of the Krimea, turn to windward nearer the coast of Anadóli than that of the Krimea, as far as Cape Injeh. This plan succeeded in 1839, for M. de Marigny relates that out of 40 vessels that left the Bosphorus for Kertch, the only two that took the above route succeeded in reaching their destination 15 to 20 days sooner than those that beat along the coast of the Krimea.

3. By comparing different meteorologic observations some *Winds*

curious results might be furnished, and useful to the seaman, relating to the influence that different parts of the Black Sea exercise over the winds that blow there. Those of several navigators, made without any definite object, establish a line of demarcation from Cape Ayá in the Crimea, to Kerempeh in Anadóli, thus dividing this Sea into two parts, the western and the eastern. It is rare to pass this line without observing the change, and vessels that come up to it with a fair wind are often obliged suddenly to brace their yards sharp up. There is a second division, established by the direction of the winds, which divides the northern from the southern part of the Black Sea. This line, more vaguely marked, varies in the western basin from Cape Kaliakra to the mouths of the Danube, and in the eastern basin on the Caucasian coast, from Subeshik to Cape Idokopas, near Pshad. It will be obvious that these two lines of demarcation are much less observable in the open sea than they are near the shores.

*In Western
part.*

The coast of Asia Minor is rarely exposed to the violence of northerly winds, which seldom blow home, being deflected towards east or west by the lofty range of mountains which extend in that direction throughout the country. The same thing has been observed on the coast of the Caucasus with W. or S.W. winds, and on the southern coast of the Crimea with S. or S.E. winds; but there are exceptions to these general rules, and they are the more remarkable, as they are invariably violent, which was proved in 1836 by the awful tempest, which occasioned the loss of several Russian ships of war and transports, on the coast of Circassia, and the more recent gale of the 14th November 1854, when several English transports were wrecked in Balaklavah and Eupatoria Bays.

A north-easterly wind brings with it clear weather and cold in winter. North-westerly and westerly winds, on the contrary, are often accompanied by fog and moist weather. Towards the middle of summer the northerly wind is generally pretty steady, and although at a later period it gives place to a southerly wind, yet it often reappears in January, and sometimes in February and March, and during all the spring. These remarks relate principally to the western portion of the Black Sea, which is subject to the influence of the Carpathian mountains, and the chain of the Balkan. In the eastern

portion the influence of the lofty range of the Caucasus, and of Asia Minor is felt, and it is a remarkable fact that the prevalent winds in winter on this coast from Anápah to Subeshik, are those from the N.W., and from Subeshik to Mingrelia, from the S.E., although Subeshik forms no very prominent point on the coast. The N.E. wind, by the violence with which it blows from the tops of the mountains, is said to come from "The Bed of Boreas," a term given by the ancient Greeks, and which applies at the present day. The winds from the Anatolian shore are also, in many parts, the strongest that blow there.

In Eastern part.

Northerly winds often oblige sailing vessels coming from the Mediterranean into the Black Sea to pass whole months in the Dardanelles, and in the Bosphorus, a distance which, under favourable circumstances, is passed in two days. The juxtaposition of the shores of Europe and Asia, and the rapidity of the current rendering it impossible to turn to windward, an inconvenience which often causes considerable injury to commercial interests in the Black Sea, but which, since the use of steam tugs, should do so no longer. If, after leaving the Bosphorus and bound to Odessa, northerly winds are met with in the open sea, it would be prudent, instead of beating along the coast of Rumelia or Bulgaria, to close the Crimean shore and take advantage of the N.E. or E.N.E. winds which prevail there, independently of the land breezes which Sevastópol, and more particularly Eupatoria, afford almost every night.

Northerly Winds.

4. The winters are severe in the Black Sea, but more particularly on its northern shores. The month of December and the second half of January are often called the least dangerous of the season. The mouths of the Dniepr, the Dniestr, and sometimes those of the Danube, the port of Odessa, and the Strait of Kertch, where the water is all but fresh, are frozen every winter, more or less. The ice seldom extends far to sea, and often a southerly wind springs up and clears it all away with wonderful rapidity. It is very seldom, indeed, that the cold has been severe enough to leave traces of ice after the end of February. The time of its formation at Odessa is towards the end of December, and in the space of twenty years there were only three or four consecutive years in which this port was completely free of ice.

Winters

CHAPTER II.

WESTERN SHORE; FROM THE BOSPHORUS TO ODESSA.

*N.E. Entrance
of Bosphorus.*

5. THE coast at the N.E. entrance of the Bosphorus is of moderate height, and has no remarkable feature, and the small number of landmarks on it, which serve to guide the navigator, are often enveloped in thick fogs, which are the more dangerous in these parts, so wanting in places of refuge, that one mistake may cause inevitable shipwreck. The entrance is nearly 2 miles in breadth, and is marked by a lighthouse on the coast of Europe, and another on that of Asia. Rumili Lighthouse, on the European shore, stands on a rocky promontory, a third of a mile to the southward of a strong battery named Rumili Kal'ehsi. The tower, which is formed of different diameters, carries a Fixed Light, the range of which should be 18 miles; but being badly managed, is seldom seen at that distance. To the northward of the tower a group of high trees serves as a day-mark for vessels making for the strait. Anadóli Lighthouse stands on the ancient promontory Hereum, at the north extremity of the Bosphorus on the Asiatic shore, about 2 miles S.E. $\frac{1}{2}$ E. of Rumili Lighthouse. It also shows a Fixed Light, with a supposed range of 18 miles; and being built on elevated ground, may be recognized during the day by the tower being lower than that on the opposite shore, and only of a single diameter, and likewise by a large white building on a high hill to the S.E. of it. The Fort of Anadóli lies at the foot of the tower.*

Rumili Light.

Rumili Kal'ehsi.

Anadóli Light.

Cape Rumili.

Kyani Island.

6. Cape Rumili is surrounded by a belt of high rocks with steep faces, on one of which, named Kyani Island, is still seen the remains of an altar dedicated to Cæsar Augustus. A vessel may anchor during S.W. winds in fine weather or in a calm, at 4 or 5 cables' lengths to the S.E. of the island, in 15 fathoms, over mud bottom. Between the Cape and Kilios, which is 4 miles to the westward, the coast is sloping, and much intersected. The anchorage, abreast of the village of Kilios, is in 3 or 4 fathoms, over a bottom of hard sand, at 2 or 3 cables'

* See view on Black Sea Chart and Bosphorus Sailing Directions.

lengths from the shore, and sheltered from westerly winds. Northerly winds are said not to blow home; but this is not certain. Near Kilios a long beach commences, which is quite straight, and trends to the N.W. by W. for 37 miles; it is faced by a sandbank, upon which vessels are stranded and lost, if not carried over by the waves. The coast about Kara Burnú, which is 21 miles to the north-westward of Cape Rumili, bears a resemblance to the land in the vicinity of the Bosphorus, which circumstance has given it the name of the False Channel; and the mistaking this for the true Bosphorus has been the cause of many shipwrecks.*

Kara Burnú.

7. Cape Serveh lies 32 miles to the N.W. of Kara Burnú, and 52 from the Bosphorus. It projects a good deal to the eastward, and would make a shelter against northerly winds, if the bottom were not bad and rocky. A reef extends $1\frac{1}{2}$ cables' lengths to the S.E. from the cape.

Cape Serveh.

At 2 miles to the southward of Cape Serveh is the small town of Midiah. A little creek is formed on its southern side, about 100 yards in breadth, which will only serve as a shelter against the northerly winds to small vessels that can anchor in from $1\frac{1}{2}$ to 2 fathoms over a sandy bottom. At nearly 13 miles to the northward of Cape Serveh is Cape Kuri, which is of moderate height, and projects to the southward. Its shores are sloping, and of a yellowish appearance, and a little wood on its summit serves to distinguish it. One of the most remarkable mountains on the coast of Rumili, named Mount Paphia, rises to the N.N.W. The western angle of this promontory, of which Cape Kuri forms a part, is called Yniada Point, which is bordered with rocks, and between it and the village of that name, which lies $2\frac{1}{4}$ miles to the westward, is Yniada Road. A reef of rocks extends off in a south-westerly direction, 2 cables' lengths from a ruined tower, on the northern shore of the road, which stands nearly three-quarters of a mile to the N.W. of Yniada Point. [See Plan.]

Midiah.

Cape Kuri.

Mount Paphia.

*Yniada Point
and Road.*

A vessel, in approaching the road with a northerly wind, should round the Cape and Yniada Point pretty close, as the wind will fail inside, taking care to avoid the rocks off the

* See Admiralty Chart of the Black Sea, Sheet 1., Bosphorus to Cape Kaliakra, from the Russian Survey. Scale 0·2 of an inch to a mile.

Cape and the ruined tower. The best anchorage is to the south-westward of the tower, at about three-quarters of a mile from the shore, in from 6 to 7 fathoms, over a bottom of sand and fair holding ground, Yniada Point bearing E. $\frac{3}{4}$ S. $1\frac{1}{2}$ miles. There are 3 to 4 fathoms' water at about 3 cables' lengths from the shore. Vessels very often visit this roadstead, particularly in autumn and winter, to allow the bad weather to pass; and although it has afforded security to many, yet the sudden changes of wind to which it is subject have been, though very seldom, the cause of shipwrecks. Here, as all along the coast, the winds veer towards the shore every night. A heavy swell sets in at times, which causes vessels to roll very heavily, and then an eddy sets pretty strongly towards the Cape. At the bottom of the road there is a beach. Cape Stephanos lies 4 miles to the northward of Cape Kuri, and projects very little to the westward.

Cape Stephanos.

8. At 11 miles to the northward of Cape Stephanos is the little town of Agathópoli, called by the Turks Ak-téboli, from which Mount Paphia bears W. by N. 4 miles. A small cove lies to the southward of the town, and is formed by two points, on the northernmost of which stands the town, and rises to about 52 feet above the water. The point to the southward is about half that height. The entrance to the cove, which is a little more than half a cable wide, is between a reef of rocks, which borders the northern point, and the southern point, which is bold to approach. Most of the rocks are visible, and appear as large as buoys above the water. The greatest depth in the channel is about $4\frac{3}{4}$ fathoms. On entering the creek, a solitary building, which is a church dedicated to Saint Constantine, is seen a little to the southward of the southern point. The anchorage is, in about 4 fathoms, over a sandy bottom, sheltered from all but easterly winds, which can be avoided by approaching nearer the town, and securing the vessel's stern to the shore, which is composed of shingle.

Anchorage.

9. The little harbour of Basiliko lies about 5 miles to the N.W. by N. of Agathópoli, and about 2 miles to the eastward of a mountain to the northward of Mount Paphia. It is formed by two points, bearing about N. by W. and S. by E. from each other, a third of a mile apart. On the southern point stands the village and mills, and to the eastward of it, at about 3 good cables' lengths from the shore, are several rocks, rising

Basiliko.

to the height of a boat above water. The entrance to the harbour is about 3 cables wide, and is formed between a reef which runs off the northern point, and the point to the southward, on which stands the village. A vessel will find 6 fathoms at the entrance, and should keep the point of the village aboard, and anchor to the westward of it at about half a cable's length from the shore, in from 3 to 4 fathoms, over a good holding ground of sand, and sheltered nearly from all winds. In the other parts of the harbour the holding ground is not good, being composed of sand and flat stones, over which the anchors are liable to drag. *Anchorage.*

10. The anchorage at Kara-agach is in a small cove, 5 miles to the N.W. of Basiliko, and the entrance to it is to the southward of a long and wide reef, which extends off for two-thirds of a mile in a south-easterly direction from the northern point of the cove, and another point to the S.S.E., having a depth of from 12 to 4 fathoms between them. The approach to this little roadstead, which is, however, but little frequented, is from the southward, and a vessel should keep the western shore on board before standing for the anchorage, which is in the northern part of the cove, in about 4 fathoms, abreast of a river, and well sheltered. *Kara-agach. Reef. Anchorage.*

11. At $1\frac{1}{2}$ miles to the northward of Kara-agach is a small bay, about a mile in depth, and open to the eastward. It is formed by two points bearing N. $\frac{3}{4}$ W. and S. $\frac{3}{4}$ E. from each other, $1\frac{1}{2}$ miles apart, and carries a depth of from 4 to 8 fathoms, over a sandy bottom. The point to the southward, called Athánatos, has a reef extending from it for more than $1\frac{1}{2}$ cables' lengths to the northward, and very few of the rocks appear above water; the point to the northward, named Zunaritsa, has a similar reef running out about the same distance to the S.S.E. A vessel wishing to anchor in the southern part of this bay should, on opening out the little bight formed between the cliffs to the westward of Athánatos Point, steer for it when it bears due South. There is room here for 5 or 6 vessels in about 4 fathoms' water, if they secure their sterns to the shore. A small creek, about 130 feet wide, forms part of this bight, the entrance into which is only large enough to admit a small vessel; but there is space enough inside for 3 or 4 vessels drawing 16 feet water. *Athánatos Point. Zunaritsa Point.*

There is anchorage in the northern part of the bay, in about *Anchorage.*

4 fathoms, with the vessel's stern secured to the shore, between the reef which extends off Zunaritsa Point and the beach which borders the northern shore. The sea sometimes sets in when it is blowing fresh from the S.E., but the wind does not blow home. Care must be taken in approaching this anchorage to avoid a long flat shelf of sunken rocks which runs off to the southward from the second prominence to the westward of Zunaritsa Point. A vessel, therefore, after passing to the southward of the reef off Zunaritsa Point, should continue on to the westward, and only haul up when the end of the beach bears N.W. There is a rivulet in the N.W. part of the bay, which collects its waters in the plain, but it barely finds a passage to the sea at the foot of the heights.

Rivulet.

Cape Zeitún.

12. Cape Zeitún, which projects considerably to the eastward, bears N.E. by N. 3 miles from Zunaritsa Point, and should not be approached within a good quarter of a mile, as it is bordered with rocks. Baghlar Point lies 2 miles to the northward of Cape Zeitún, and is safe to approach.

Búrghaz Gulf.

13. The Gulf of Búrghaz, or Pyrgos, is the only part of the Black Sea which affords several good anchorages. Its two extremities are Baghlar Point to the southward, and Cape Eminch to the northward, bearing from each other N.N.E. and S.S.W. 22 miles. The town of Búrghaz lies at the bottom of the gulf.*

Sizopoli.

14. The town of Sizopoli is built on a peninsula projecting out two-thirds of a mile to the N.E., and is about a quarter of a mile wide. It is joined to the main land which is high, by a low and narrow isthmus. An isolated mountain, of a round form, called by the Turks Bakirli, serves as a landmark for making Sizopoli, from which it is distant about 6 miles.

*Mount
Bakirli.*

Sizopoli Bay.

Sizopoli Bay lies to the westward of the peninsula, and is of a semicircular form, about 2 miles in breadth and $1\frac{1}{4}$ in depth. A small island, called Kyrios, or Megalo-Nisi, about half a mile in length, from East to West, lies about that distance to the northward of the town, and $1\frac{1}{2}$ miles to the E. by N. of the Trinity Convent, which stands on the little peninsula projecting out from the western shore, called Cape

Kyrios Island.

* See plan of Búrghaz Gulf, by Captain Spratt, and the Officers of the *Spitfire*, 1854. Scale 1·6 inches to a mile.

Trias, or Sfitera Kavos, forming thus two passages into the bay. A vessel in taking the southern passage between the island and the town, which carries a depth in the middle of about 8 fathoms, should give the small islet, called St. Peter, which is connected to the eastern end of Kyrios by a reef, a berth of a cable's length. The western channel is the broadest, and has a depth of from 11 to 13 fathoms in the middle.

*Cape Trias.**St. Peter Islet.*

A small island, of a triangular form, called Joannes, or Petros, lies about $1\frac{1}{2}$ cables' lengths to the westward of the town, and forms, between it and the peninsula, a little port of about a cable in length, and the same in breadth. The entrance to it is from the northward, and is much narrowed by rocks, which leave near the island a passage of from 40 to 46 feet in breadth, and which will only admit vessels of light draught. They anchor in from 2 to $2\frac{1}{2}$ fathoms over a sandy bottom, and are quite safe. This port has no outlet to the southward, as a bar of sunken rocks runs across it with only 3 or 4 feet water over them. There is a well of very good water on the island, but the large well, 33 feet deep, which supplies the town, would not be convenient for ships, even if it could afford a sufficient quantity for both such demands.

*Joannes Island.**Water.*

The best anchorage in the bay is in about 4 fathoms to the southward of Joannes, and nearly abreast of the isthmus, and if small vessels can get within a cable's length of the shore they will be perfectly safe. In the middle of the bay there are from 6 to 7 fathoms, over a bottom of mud and shells, but the holding ground is bad. Between Kyrios and the town, or between Kyrios and Cape Trias, the bottom is mud and shells, and good holding ground.

15. About 2 miles to the southward of Sizopoli, a tongue of land nearly a mile in length, forms the north extremity of a small bay called Kavak. In the N.W. angle of this bay several copious springs rise out of a bed of loose sand, about 2 cables' lengths from the shore. These, when united, would form a stream at which a fleet, with a little management by sinking casks, could obtain a supply of excellent water, clear as crystal, and of high repute for its wholesome quality. The spot is well indicated by circular clumps of trees at the sources of the springs.

*Kavak Bay.**Water*

Anchorage. There is good summer anchorage off this bay for a fleet, at $1\frac{1}{2}$ miles from the springs, in 18 to 20 fathoms water on mud. The coast of the bay appears to be bold, except about 2 cables S. of the S.E. point of the tongue, where there are some rocks above water. Large ships should anchor with this point bearing to the westward of north.

Cape Nikoló. 16. Cape Nikoló lies nearly $1\frac{1}{2}$ miles to the northward of Cape Trias, and is bold to approach. A little bay is formed

Cape Akra. between it and Cape Akra, or Akri, which lies $1\frac{1}{4}$ miles to the E.N.E., but vessels seldom anchor in it, although it carries a

Anchorage. convenient depth of from 7 to 9 fathoms, as it is open to the N.E. A rocky spit runs off nearly 2 cables' lengths to the N.E. from Cape Akra, having between its extremity in 5 fathoms and the cape several rocks above water, with a depth of 8 fathoms between them and the land.

Cape Sarleati. 17. Cape Sarleati, or Monopetra Athia Kavo, which bears about W. by N. $1\frac{1}{2}$ miles from Cape Akra, is bordered by a

Anchorage. reef above water, and forms, with the latter cape, a bay of about a mile in depth, and open to the northward. It affords safe shelter from south-easterly winds in from 5 to 9 fathoms' water over a bottom of sand.

18. Another bay, and nearly the same shape as that just described, is formed to the westward, between Cape Sarleati and Sukala Point, which bear nearly east and west from each other 2 miles. It affords good anchorage in from 5 to 8 fathoms' water over a bottom of mud and sand. Some foul

Sukala Point. ground extends out in a northerly direction from the point towards Papás or Anastasia Island, which lies nearly three quarters of a mile to the north-eastward, and is about a mile in circumference. A small convent stands on it, and a mill on its southern extremity, which is bordered by some rocks above water.

Papás Island. 19. To the westward of Sukala Point lies an excellent bay, called Chinganeh, or Katsevelo Skalah, about 2 miles in depth. Vessels that seek for shelter in the Gulf of Búrghaz generally anchor in this bay. The greatest depth is about 8 fathoms, with 2 to 3 fathoms near the shore, over a bottom of mud. Small vessels that load with wine anchor close to the shore, near a rivulet at the bottom of the bay, where there are

Chinganeh Bay.

some booths and store-houses, which are, however, abandoned in winter. This landing-place is called Chinganeh. A little *Chinganeh.* to the westward there is another rivulet, which carries with it a great deal of mud into the sea, and which forms a bank, on which vessels are sometimes seen aground.

20. Poros Point is bordered by a rocky shoal, which extends *Poros Point.* about 2 cables' lengths to the northward, and between it and the town of Búrg haz lies Poros Bay, of about $1\frac{1}{2}$ miles in *Poros Bay.* depth to the westward, having 5 fathoms at its entrance, which is open to the eastward. As at Chinganeh, the country vessels that remain here during the bad season lie on the mud which encumbers the shore. There is a channel at the southern part of the bay, with from 3 to 18 feet in it, leading to a passage carrying a depth of from 2 to $2\frac{1}{2}$ fathoms, which serves as an outlet to a large lagoon, or liman, named Akrianú Gúle. *Akrianú Gúle Liman.* The western shore of the bay is low and sandy, and extends to the northward as far as the base of the high land on which stands the town of Búrg haz. At the northern end of this *Búrg haz.* shore or spit, which separates the bay from the Búrg haz Liman, or Moores Gúle, (which is about 5 miles in length from east to west, and $2\frac{3}{4}$ miles in breadth,) the beach is only a cable's length across. A rocky bank, named Búrg haz Reef, *Búrg haz Reef.* extends a good mile to the south-eastward from the eastern angle of the town, and small vessels may anchor to the westward, in about 3 fathoms, over a bottom of sand, between the reef and a sunken rock which lies 3 cables' lengths to the southward of the western portion of the town, but as Poros Bay is open to the eastward, they must seek for shelter in the southern part of it if it should blow hard from that quarter.

21. The town of Akhiolú or Ankhélu bears E.N.E. $8\frac{1}{2}$ miles *Akhiolú.* from Búrg haz, and stands on a rocky point, which is connected to the main land by a tongue of sand. The point is surrounded by a reef, which extends nearly three quarters of *Ankhélu Reefs.* a mile in a south-east direction, to the depth of 5 fathoms, and is called the Ankhélu S.E. Reef, and $1\frac{1}{2}$ miles in a north-east direction to the same depth, and is named the Ankhélu N.E. Reef. There is safe anchorage in the bight to the westward of the town with north-easterly winds, in about 5 fathoms, over a bottom of sand, at 2 or 3 cables' lengths from the shore.

The outer anchorage to the southward is in about the same depth, over sand and mud, but vessels surprised here with easterly or south-easterly winds must run for shelter either in Poros or Chinganeh Bays.

- Búrghaz Rock.* 22. The Blonde or Búrghaz Rock lies E.N.E. $\frac{1}{3}$ E. $2\frac{3}{4}$ miles from Búrghaz Point, and carries a depth of $4\frac{3}{4}$ fathoms; Moore's Peak, open of Búrghaz Point, clears it to the southward. Some rocky patches, called the Soka Shoals, having from $1\frac{1}{4}$ to 3 fathoms over them, lie about $3\frac{1}{2}$ miles to the north-eastward of Búrghaz Point, in the north-west part of the gulf. Their outer edge in 4 fathoms is a mile from the shore. The Lakanathes Rock has only 3 fathoms over it, and lies a good mile to the S.E. $\frac{3}{4}$ S. of Akroteri Point, on the northern shore of the gulf. Another rocky patch of 2 fathoms lies 4 cables' lengths to the S. $\frac{1}{2}$ E. of the same point.
- Spitfire Rock.* The Spitfire Rock lies E. by N. from Búrghaz Point, and has a depth of 3 fathoms on it, with 6 fathoms close to its western side. Cape Emineh, open to the eastward of Akhiolú Point, clears it to the eastward. The Stavro Rock lies upwards of 2 miles S. by W. $\frac{3}{4}$ W. from Akhiolú Point, and 3 miles due east from Spitfire Rock. Akhiolú Minaret on with the high peak on the Balkan range, leads over its shoalest part in 15 feet.*
- Ankhélu Bank.* The middle of a rocky bank, called the Ankhélu, lies about $1\frac{1}{2}$ miles to the S.W. $\frac{1}{2}$ S. of Akhiolú Point. It is about half a mile in length from north to south, and from 2 to 3 cables in breadth, and carries a depth of from $3\frac{1}{4}$ to 5 fathoms on it. The Crescent Shoal has from $4\frac{1}{2}$ to $5\frac{1}{2}$ fathoms on it, and lies $1\frac{1}{2}$ miles to the eastward of the Ankhélu Bank. A sandy patch of 5 fathoms lies half a mile to the southward of this shoal. "Búrghaz Gulf has no watering place, and its northern side affords no anchorage for a fleet, being incommoded by extensive shoal water and by several insulated patches of rock and foul ground."†

Rhavtha Burnú. 23. From Akhiolú Point the coast runs for $4\frac{1}{2}$ miles to the northward, and then bends round to the eastward, to Rhavtha Burnú, forming a large bay of $1\frac{1}{2}$ miles in depth to the westward. Several rocky patches exist in this bay. The Chemose

* See Views A and B on Admiralty Plan of Búrghaz Gulf, by Captain Spratt and officers of H.M.S. Spitfire, 1854.

† Remarks by Captain Spratt, June 1854.

rocks lie nearly in the middle of the bay, at about three quarters of a mile from the shore, and have from $3\frac{1}{2}$ to 5 fathoms on them. The Rhavtha Rock has only 3 fathoms on it, and lies three quarters of a mile to the S.S.W. $\frac{1}{2}$ W. of Rhavtha Point. The western extreme of Mesembria open of Kavo Krotée, leads $2\frac{1}{2}$ cables' lengths to the eastward. Rhavtha Burnú lies about half a mile to the southward of the village of Rhavtha, and is bordered by a rocky reef extending a good quarter of a mile from the shore.

*Chemose Rocks.**Rhavtha Rock.**Rhavtha.*

24. A summer watering place for a fleet will be found at the river Chemose, which flows into the sea between Mesembria and Akhiolú, near the hamlet of Chemose. It is next in size to the Kam Chai, and is said to run all the summer. Both these rivers are very turbid at this season ; but the quality of the water is considered to be not the less wholesome from their discolouring sediment. Launches can approach close to the Chemose, and water from it with convenience. There is anchorage off this bight during the summer season in 12 fathoms on a muddy bottom ; but not nearer the mouth of the river than 2 miles for the fleet, owing to the several shoals which contract the inner anchorage of the bay too much for large ships.

*Chemose River.**Water.**Anchorage.*

25. The town of Mesembria, like that of Akhiolú, occupies the whole rock on which it is built, and is connected to the main land by a narrow isthmus of sand, which is sometimes covered by the sea. The rock is nearly surrounded by a reef, which extends from it nearly half a mile to the S.E., and is about the same distance in breadth. The anchorage to the southward of the town is abreast of the isthmus in a small bay, in from 5 to 8 fathoms' water, at 4 cables' lengths from the shore, over a bottom of sand and shells. The natives say that vessels not only lose their cables here, but that both cables and anchors are cut by the magnetic power of the rocks. There is anchorage also to the northward of the isthmus in about 7 fathoms, but vessels are here exposed to the northerly winds, which precipitate themselves furiously from Mount Emineh. From Mesembria the shore becomes sandy, and curves to the northward, for about 3 miles, when it bends abruptly to the eastward, and runs in a straight line for nearly 8 miles to Cape Emineh, forming a large bay, which affords very good

Mesembria.

anchorage all over it from 10 to 12 fathoms. It is open from east to south, and vessels that run in for shelter generally anchor in its western part, which is called *Karidies*.

Karidies Bay.

Cape Emineh.

26. Cape Emineh is a bold-looking headland, with a monastery on it dedicated to Saint Nicolas. A few rocks extend about 2 cables' lengths to the eastward of it, and a depth of 5 fathoms will be found at a good half mile from the shore.

Water.

The coast under the cape affords no watering place for a fleet after July, as the only streamlet which flows from the Balkan to this part of the coast is then insignificant, if not quite lost in the upper part of the valley. This streamlet descends through the first ravine to the westward of Cape Emineh, about

Anchorage.

2 miles from it. The best anchorage under the Cape seems to be between this ravine and the next conspicuous valley, about $1\frac{1}{2}$ miles farther west, off which the bottom is mud.

The coast from Cape Emineh takes a N. by E. direction for $28\frac{1}{2}$ miles to Cape Galata, and the following points and anchorages are between them :—Kotsan Point is 4 miles to the northward of Cape Emineh ; and Kara Point (black) nearly $5\frac{1}{2}$ miles

Kotsan Point.

Kara Point.

to the northward of Kotsan, and affords some shelter with north-westerly winds. The anchorage is abreast of the village of Joski, which lies about $2\frac{1}{2}$ miles to the southward of the point.

Anchorage.

Joski.

Aspros.

The village of Aspros lies about $1\frac{3}{4}$ miles to the northward of Kara Point. The roadstead abreast of the village is open

Ak Point.

from north round by the eastward to south. From Ak Point (white), which is about $4\frac{1}{2}$ miles to the northward of Kara, the coast inclines a little to the westward of north for 4 miles, up to the mouth of the river Kam Chai, and from thence for $2\frac{1}{2}$ miles a little to the eastward of north to Ilanjik Point.

Ilanjik Point.

Kam Chai.

27. The first watering place, to the southward of Varna, is at the mouth of the Kam Chai, a large river which issues about 9 miles to the southward of Cape Galata. A broad and wooded plain breaks here through the hills and white cliffs, and the river winds round the northern edge of this plain or valley. It runs throughout the summer, and was found to carry a depth of 16 feet for more than a mile above the entrance.

Water.

The Kam Chai has a bar of 2 to 3 feet depth ; but launches can anchor at a convenient distance outside, and water from

the river with long hoses. A low hill terminates on the other side of the river, at pistol-shot distance, with much cover from brushwood upon the top and rear of the ridge.

A thick forest grows on the banks of the river, and supplies Constantinople with large quantities of firewood. Large stacks of billets are now lying on the beach for sale, both at this river's mouth and on other parts of the coast, and are sold at the rate of 30 piastres per 1,000 okes, or about 1 dollar per ton. *Firewood.*

28. There is good anchorage off the Kam Chai during the summer, in 10 fathoms water on a bottom of mud, at the distance of $1\frac{1}{4}$ mile from the shore; and no large vessel should approach nearer to its mouth than a mile, as a bank of rock and gravel was unexpectedly crossed at half that distance, on which $2\frac{1}{2}$ and 3 fathoms were found, with 7 fathoms within it, not known to the pilots, nor marked on the Russian chart. *Anchorage.*

29. Between the Kam Chai and Cape Eminch there are two valleys—the Keosako and Bana—each of which has its rivulet; but, as they are said to fail near the sea after a month, they require no further notice. At Keosako we were informed that 200 or 300 cattle could be procured after a day or two's notice, and with the authority of the pasha of the district, but not otherwise. Wood is also stacked on the shore, and selling at the same price as at the Kam Chai. From Ilanjik, Cape Galata bears N.N.E. 8 miles, and the depths between them are 5 to 10 fathoms at about a half to $1\frac{1}{2}$ miles from the shore. *Keosako and Bana Valleys.*

30. From Cape Galata the coast bends in abruptly to the westward, and forms the Bay of Varna, the entrance to which lies between Cape Galata and Cape St. George, or Gorgof, which bear from each other N.E. $\frac{1}{2}$ E., and S. W. $\frac{1}{2}$ W. nearly 4 miles. The bay is spacious, with good holding ground, composed of mud and sand, and well sheltered from southerly, westerly, and northerly winds, but open to easterly winds, which, it is said, seldom blow home. It carries a depth of 10 to 5 fathoms, the latter depth being found at from 2 to 5 cables' lengths from the shore, all round the bay. The best anchorage is about three quarters of a mile to the south-eastward of the town, which is built on a promontory at the head of the bay, in about 7 fathoms, taking care to avoid the patches of foul ground which lie about $3\frac{1}{2}$ cables' lengths from the southern shore. Small vessels cannot come very *Cape Galata.* *Varna Bay.*

near the landing place to the northward of the town, for the accumulation of mud, stones, and anchors, makes the approach to it even difficult for boats. Vessels sometimes anchor to the eastward of the town, in from 6 to 7 fathoms water, over mud and sand.

Foul ground.

The foul ground lying in the southern part of Varna Bay, says Commander Spratt, bears N.W. $\frac{1}{2}$ N. $7\frac{1}{4}$ cables' lengths from Cape Galata. It appears to be about 50 feet in length, with two heads carrying a depth of $3\frac{1}{2}$ and $4\frac{1}{4}$ fathoms, upon neither of which will the lead remain, and 6 fathoms around it at only a few feet distant. A red upright buoy has been placed close to the rock, but the ground is foul for anchoring for nearly 2 cables' lengths on either side of the buoy, there being other columnar points of rock rising to within $4\frac{1}{2}$ fathoms of the surface at two thirds of a cables' length to the westward of the buoy, with possibly less water on them, as the pinnacles are so small that the lead will not remain upon their summits. The bottom, within the distance of 2 cables of the buoy, appears to be in general rock, thinly covered with sand. [See Plan.]

Red buoy.

Varna has a population of 16,000, and a British Consul resides here. The sea face is defended by three powerful batteries, and on the land side the town is surrounded by a loop-holed wall, with bastions mounting 200 guns, chiefly of large calibre. It may be considered a second-class fortress, capable of making a protracted defence. Varna is connected by electric telegraph with Vienna, Paris, London, and the Krimea, and will shortly be so with Constantinople. A project has been started for cutting a ship canal into the lake Devna, which lies west of the town, and thus making a safe and commodious harbour.

From the town of Varna the coast trends away to the E. by N. towards Cape St. Demetrios and Cape St. George, and the water shoals gradually to within $3\frac{1}{2}$ cables' lengths from the shore, with the exception of some foul ground, which lies about half a mile to the eastward of the town, at 3 cables' lengths from the shore.

*Cape St.
George.*

*St. George
Shoal.*

31. The N.E. point of Varna Bay, called Cape St. George after a monastery behind it, should not be approached nearer than $2\frac{1}{2}$ cables' length, as some foul patches lie fully $1\frac{1}{2}$ cables off the clifly points. The St. George shoal lies N. 48° E. (mag.)

2 miles distant from the cape, and consists of several rocky points, extending for nearly half a mile along the coast and the same distance off it, over which there are only 3 and 4 feet water. There is shallow water for half a mile outside of the rocks, so that no vessel should approach the coast nearer than $1\frac{1}{2}$ miles, or shoal her water to less than 10 fathoms either abreast or to the northward of the reef. The marks for clearing the reef are, the western end and summit of the highest flat hill south of Varna Bay a little open of Cape St. George.

32. The vast curve that the coast of Bulgaria takes to the northward and eastward, between Cape St. George and Cape Kaliakra, which bears E. by N. $\frac{1}{4}$ N., distant $22\frac{1}{2}$ miles, is called Kavarnah Bay, in which are the smaller bays of Batova, Baljik, and the roadstead of Kavarnah, and a long reef, carrying a depth of only 2 fathoms, on which an Austrian vessel was wrecked in 1829. The southern end of the reef lies about 3 miles N.E. $\frac{1}{4}$ N. from Cape St. George, and from thence it runs the same distance, nearly parallel to the shore. Its outer edge, in 3 fathoms, is about $1\frac{1}{2}$ miles from the coast, and the position of its centre is abreast of the space which separates the second and third cliffs to the northward of the cape. *Kavarnah Bay.*

Batova Bay lies 9 miles to the N.E. by N. of Cape St. George, and abreast of a thickly wooded and very swampy plain, across which the W.N.W. winds blow with great strength. The anchorage is in 7 or 8 fathoms, at about $1\frac{1}{4}$ miles from the shore. [See Plan.] *Batova Bay.*

Baljik Bay, which is abreast of the village of that name, lies about $3\frac{1}{2}$ miles to the N.E. of Batova Bay, and in the N.W. bight of the great Bay of Kavarnah. It serves as a place of refuge for vessels, not only in northerly winds during the winter months, but from all bad weather. It is open to S.E. and S. winds, which the natives say never blow home, and therefore allow their vessels to winter there with perfect confidence. The anchorage is to the southward of the village at about three quarters of a mile from the shore, in 5 to 6 fathoms muddy bottom. There is good anchorage for a fleet in Baljik Bay, sheltered from the prevailing winds, over a bottom of tough clay gradually shoaling to the coast. [See Plan.] *Baljik Bay.*

The village of Kavarnah is built in a narrow valley, $7\frac{1}{2}$ miles *Kavarnah Roadstead.*

to the eastward of Baljik, and about the same distance to the N.W. of Cape Kaliakra. Its roadstead also serves for shelter to vessels in bad weather, but they are not equally safe as in that of Baljik, for the bottom is not so inclined at this receding portion of the coast. The anchorage is at the same distance from the shore, and in the same depth of water as that of Baljik.

Cape Kaliakra. 33. Cape Kaliakra, or Jelegra, which rises 80 feet above the sea, is the southern extremity of a small peninsula, of about 800 yards in length and 200 broad. Its shores are sloping, and of a reddish colour, and from a little distance to the eastward it appears quite isolated from the main land, which is higher. The cape is bordered by a reef, to which a berth of a cable's length must be given in passing, and would be an excellent position for a lighthouse.

Reef.

Cape Kaliakra is remarkable for its prominence, as well as for its being a point of demarcation. The western coast of the Black Sea affords, in the space of 100 miles to the southward of it at the foot of mountains generally very picturesque, a great number of bays, coves, and harbours, more or less secure; but to the northward of this cape the aspect of the coast changes, being of moderate height, of a level surface, its shores slightly intersected, and affording but little shelter all the way to Odessa. It is also near Kaliakra that the bottom of the basin of the Black Sea rises suddenly to the depth of 44 fathoms, and continues so as far as the Crimea, towards Eupatoria and Sevastópol, where it rises to 70 fathoms, from a bottom which just before could not be found at 100 fathoms, which circumstance may be useful to seamen. [See Chart, Sheet 2.]

Depths in Black Sea between Kaliakra and the Crimea.

Cape Shablah. 34. From Cape Kaliakra the coast takes a N.E. direction for $12\frac{1}{2}$ miles to Cape Shablah (Beacon), on which may be seen a tower built in the form of a pyramid, formerly used as a lighthouse,* and a little farther on a hillock. In passing this cape give it a berth of $1\frac{1}{2}$ cables' lengths; from thence the coast trends almost due north as far as Cape Midia.

Mangali.

35. The small town of Mangali lies 16 miles to the northward of Cape Shablah, and may be recognized by its little hills.

* Owing to the number of wrecks that have recently taken place near Cape Shablah, it is proposed to place a revolving light on this tower, showing a bright face every half minute. It may possibly be lighted in the course of the year. (See p. 2.)

Vessels generally anchor abreast of the town, at about a mile from the shore in $5\frac{1}{2}$ fathoms' water, but smaller vessels may anchor in 4 fathoms at $1\frac{1}{2}$ cables from the shore to the northward of some isolated rocks, which are supposed to be the remains of an old mole, and which lie between 2 and 3 cables' lengths to the southward of the town, and abreast of a little valley, through which a small river flows, and which forms itself into a lagoon on the beach. The roadstead is open to the eastward.

*Anchorage.**Rocks.*

36. Cape Tuzlah is 11 miles to the northward of Mangalí, and is of moderate height and sloping. A few rocks run out a short distance from the cape, and between it and Kustenjeh is a large and small lagoon, called the Sujoli Lake.

*Cape Tuzlah.**Sujoli Lake.*

37. The town of Kustenjeh lies 11 miles to the northward of Cape Tuzlah, and is built on a promontory projecting half a mile to the S.E., which shelters its roads from northerly winds, but they are open from the N.E. as far round as south. The ordinary anchorage is in from 4 to 6 fathoms, over a bottom of sand and mud, at about three quarters of a mile to the S.W. of Cape Kustenjeh, but small vessels approach nearer the shore, where they lie sheltered by the town from easterly winds.* The holding ground there, however, is bad, being a continuation of a bank of coarse sand, which runs along the coast to the southward, at about a third of a mile from the shore. A rocky patch, with only $1\frac{1}{2}$ fathoms on it, rises from this sand bank at $1\frac{1}{2}$ miles to the S.W. of the town, and at nearly two cables' lengths from the shore. [See Plan.]

*Kustenjeh.**Anchorage.**Rocky patch.*

Cape Kustenjeh is the eastern projection of the promontory, and is bordered by some rocky uneven ground, extending upwards of half a mile to the eastward from the cape, where there is a rocky patch carrying a depth of $3\frac{3}{4}$ fathoms. Care must

Cape Kustenjeh.

* Kustenjeh is one of the nearest points on the Black Sea to Chernavoda, on the Danube, from which it is distant, in a direct line, only 29 geographical miles. A canal was at one time projected to unite them, but a survey made by a Prussian engineer in 1830, showed that the summit level to be passed over, at about 2 miles from the Black Sea, was 164 feet above the level of that sea, and no water could be found in the limestone hills to feed the canal. It is not improbable that a tramway, if not a railway, may be made between these two points, by which some 180 miles of intricate navigation of the Danube would be avoided. The level of the Danube at Chernavoda is about 36 feet above the Black Sea.

- be taken in approaching the land to the northward of the cape, for between it and Singholi Point, which lies $2\frac{1}{4}$ miles to the northward, there are several rocky patches, more or less dangerous, lying nearly $1\frac{1}{2}$ miles from the coast.
- Singholi Point.* 38. Cape Midia bears N. by E. $\frac{3}{4}$ E. about 8 miles from Singholi Point, and affords but slight shelter from northerly winds. The little town of Kara Irman stands $2\frac{1}{2}$ miles to the N.E. of the cape, and has an open roadstead. To the northward of the town the coast becomes low and sandy, which indicates the approach to the mouths of the Danube.
- Kape Midia.*
- Kara Irman.* 39. The southern mouth of the Danube, called the Portitskoe, is 24 miles to the north-eastward of Cape Midia, and leads into Raselm Lake. From thence the shore of the island of Dranova, which forms part of the delta of this river, trends for 28 miles to the eastward, up to the St. George mouth, and affords good shelter from northerly winds, in about $5\frac{1}{2}$ fathoms' water, over mud and shells, at $2\frac{1}{2}$ miles from the coast.
- Portitskoe.*
- Raselm Lake.*
- Dranova Island.*
- Anchorage.* The St. George mouth of the Danube is from $1\frac{1}{2}$ to 2 cables wide, and has two little islets at its entrance, and an accumulation of sand at $2\frac{1}{2}$ miles from its mouth. The depths decrease suddenly at 3 miles from the shore, from 18 and 13 fathoms to 30 feet. It is said that there are only $4\frac{3}{4}$ feet on the bar of the river, deepening to 30 feet inside, but a complete examination of it is much wanted.
- The St. George Mouth.*
- Bar.*
- The Sulina Mouth.* 40. The Sulina mouth, or middle entrance to the Danube is 17 miles to the northward of the St. George, and is the only branch made use of for commerce, on account of the greater depth at its mouth. It extends 50 miles inland, including its numerous widenings from the sea to Chatal Point, and varies from 1 to $1\frac{1}{2}$ cables in breadth. Its banks in some places are 7 feet high, and never less than 4 feet, and it carries a depth of from 19 to 50 feet, which, at its mouth, decreases to 12, and sometimes to $8\frac{1}{2}$ feet. [See Plan.]
- Chatal Point.*
- Sulina Light.* A lighthouse stands on the right, or southern, bank of the entrance, but it may be feared that the want of solidity in the ground on which it has been built may threaten its stability. Its base is 2 feet, and its height, to the top of the vane, 83 feet above the sea. It exhibits a Fixed Light, at an elevation of 72 feet, which is visible about 9 miles in clear weather, from the N. by W. round easterly to S. by W. The village stands
- Sulina.*

on the southern bank at the entrance, and a ruined stockade on the northern bank.

The master of a vessel who has never been at Sulina should take his departure from Fido-Nisi Island, which bears about E. $\frac{1}{4}$ N. $24\frac{1}{2}$ miles from the lighthouse, and steer W. $\frac{1}{4}$ S., when, if the weather is clear, he will make, right ahead, a remarkable mountain, called Besh Tepeh, rising from 900 to *Besh Tepeh.* 1,000 feet above the sea. The lighthouse and the buildings on both banks of the river will soon rise to view, when the former should be steered for on a S.W. by W. bearing, which will lead into the deepest water, the depths being from 30 to 12 feet, and over the bar in 11 feet water; a pilot is *Bar.* instructed to visit the vessel before she arrives at the buoys. The above soundings are sometimes less by $3\frac{1}{2}$ feet, and will only be found at high water in the autumn, and especially in the spring. Vessels which are unable to proceed up the river loaded, have recourse to lighters, but there are frequent complaints about the masters of them, who must be well looked after.

With contrary winds, the passage from the mouth of the river to Ismail may take a vessel a month or more, for the only wind that will serve her through all the curves of the river, without having recourse to the tow rope, is that from the E.S.E. The direct distance is about 40 miles, by the windings about 50 miles. *Passage up, with contrary winds.*

To haul a vessel up this branch with her crew, a two or three inch line should be rove through a block lashed at the fore topmast head, and the running part sent on shore, the standing part being made fast to the deck, to be eased off when passing the reeds and trees that are to be met with on the passage, bearing in mind that there is no danger of grounding where the banks are high and perpendicular, and that the shoals that run off the points at every turning of the river, and also the trees and reeds, must be avoided.

As it is dangerous to have the anchors a-cockbill or outside the vessel, they should be either fished or hoisted in board, as they may be the cause of accidents in grounding suddenly; but a kedge should always be in readiness to secure her, if she is too late to moor to the stakes on the shore, which it is necessary she should be supplied with. Having advanced as far as

Chatal Point, a vessel can proceed no farther by hauling, as there is no pathway on the right or port bank of the river, and the Cossacks that infest the left bank object to it.

Flats.

In the middle of that part of the river called Lodostavlassi, beyond the mouth of the Chonda branch, there is a flat, 2 miles in length, which forms a passage on either side. Off the western point of Moish Island, which separates the St. George branch from the Sulina, is another shallow, which must be left to the southward. A flat also extends off Chatal Point. A fourth shallow will also be met with between Isakchi and Reni, abreast of the little mouth of the Venati. The greatest danger to be met with between Sulina and Ismail is a reef which extends off the eastern point of Tuma. As the current sets right on it, a boat must be in readiness to make a hawser fast to the opposite shore. The passage up this branch is less dangerous to vessels than returning, for whether towed or sailed, they keep the left or starboard bank aboard. The waters of the Danube seldom freeze; in the Sulina they only freeze in the severest winters. [See Plan.]

Fido-Nisi Island.

41. The little Island of Fido-Nisi, called by the Greeks the Island of Serpents, bears E. $\frac{1}{2}$ N. $24\frac{1}{2}$ miles from Sulina Light-house, (Art. 40,) and is about 3 cables in length from N.E. to S.W., and $1\frac{1}{4}$ miles in circumference. Its shores are composed of shelving rocks, and the only two safe landing places are towards its north-eastern extremity. An ascent has lately been cut in the rock to the S.W. There are about 3 to 4 fathoms water at a third of a cable's length from the northern shore, 4 to 7 on the western, 5 to 10 on the southern, and $3\frac{1}{2}$ to 8 fathoms on the eastern shore, but the bottom is foul.

Lighthouse.

A lighthouse stands on the highest point of the island, which rises 129 feet above the sea, from which a revolving light is exhibited, attaining its greatest brilliancy once a minute. The height of the lighthouse, which is built of wood and coloured white, is 71 feet from base to vane, and the height of the lantern above the sea 194 feet.

Kilia Mouths.

The Kilia branch, on account of its shallowness, and the number of shallows and islets at its mouths, is now abandoned.

Appearance of the coast.

42. Beyond the Kilia Mouths of the Danube, the coast runs to the N.E. for about 80 miles to Odessa, presenting more and more, as that town is approached, a flat surface, of no great

height, with reddish and perpendicular shores, and with salt lakes appearing at intervals as far up as the mouths of the Dniestr. *Salt lakes.*

There is a depth of $4\frac{1}{2}$ fathoms all along this coast, at about a mile from the shore, and 7 fathoms at from $2\frac{1}{2}$ to 3 miles, with the exception of a bank 4 miles in length, carrying a depth of only 3 fathoms, and lying 15 miles to the northward of the Kilia Mouths, between the first and second salt lake, at about $2\frac{1}{2}$ miles from the shore. *Bank.*

At 35 miles to the N.E. from the Kilia Mouths is the high cliff of Balaban, which may be seen at a good distance off. It is sometimes called a cape, although not at all prominent, and when seen from seaward, it appears isolated between two large salt lakes. *Balaban Cliff.*

43. Seventeen miles to the N.E. of Balaban is the entrance to Dniestr Bay or Ovidio Lake, which is a large lagoon or salt lake, formed by the waters of the Dniestr before they reach the sea. It is 21 miles in length, from N.W. to S.E., and $2\frac{1}{4}$ to 6 miles in breadth, and carries a depth of from 4 to 7 feet. The entrance to the bay, which is recognized by a space of 5 miles between the cliffs, is formed by two tongues of sand and a very low island in the middle, which allow the waters of the river a passage at either end. The channel to the northward is called the Ochakov mouth, and that to the southward the Tsarigrad mouth. The latter is alone made use of by vessels frequenting the bay, and has a depth of 7 feet water in it; the former only $4\frac{1}{2}$ feet. *Dniestr Bay.*
Ochakov and Tsarigrad Mouths.

Two banks extend out to the S.S.E. from the Tsarigrad mouth, the one to 6 cables' lengths from the southern part of the low island, and the other to upwards of 4 cables' from the southern tongue of sand; and between their extremes a little bank has been formed, in an oblong shape, of about a cable in length from E.N.E. to W.S.W., forming two little passages into the mouth, of 175 and 197 yards wide. A mast, 56 feet high from the ground, and $62\frac{1}{2}$ feet above the level of the sea, is placed to guide the mariner through this mouth, and on entering, its three horizontal bars or yard-arms must be kept right ahead. Two fires are kept up during the night at the ends of the lower bar. [See Plan.]

44. In turning to windward along this coast great attention should be paid to the lead, as the variety of soundings

*Variety of
depths in the
Gulf of
Odessa.*

Lustdorf.

has often occasioned shipwreck. It has been stated in Art. 42, that all along this coast from the Kilia Mouths of the Danube to Odessa, the depth of $4\frac{1}{2}$ fathoms is to be found at about a mile from the shore, but this depth will be found near the mouths of the Dniestr at 2 miles from the shore, and also all along the coast to the N.E., at the same distance from the shore, till abreast of the little lake near a German village called Lustdorf, which lies 3 miles to the southward of Cape Fontana.

Exposed to the action of the current and the alluvial deposits of four great rivers, the Gulf of Odessa offers several very curious variations in its depth, which might sometimes cause great uneasiness to the seaman in thick weather. The first bank is of large extent, and lies about 7 miles to the E.S.E. of the low island which forms the mouths to Dniestr Bay, and has only 6 fathoms on it, with 8 to 15 around it. At 20 miles to the E. by S. of the low island, and S. by E. $\frac{1}{4}$ E., 22 miles from Cape Fontana, is another bank with 7 fathoms on it, with 10 to 15 around it; and at 39 miles, in the same direction from Cape Fontana, is a third bank, with a depth of 11 fathoms, and 12 and 17 around it.

45. On approaching Odessa the country appears covered with houses and mills; two ravines will also be seen; in the first, lies the Sukhoi Liman (the dry salt lake), which is of considerable extent, and the village of Lustdorf occupies the other.

Cape Fontana.

Cape Fontana rises perpendicularly to 124 feet above the sea at about $5\frac{1}{2}$ miles to the southward of Odessa, and on it stands a lighthouse built of stone, coloured white, and 76 feet in height from base to vane, and near which are a monastery, gardens, and some houses. The lantern is 200 feet above the sea, and carries a Fixed Light, which may be seen, in clear weather, 16 miles from the bearing of N.N.E., round by the east, to S.W. $\frac{1}{2}$ S. or through $14\frac{1}{2}$ points of the compass.

Lighthouse.

Current.

Between the western extremity of the Tendra Peninsula and Cape Fontana, but more particularly near the latter, a vessel will feel the influence of the current which runs from the rivers Dniepr and Búg with great rapidity to the S.S.W. The coast between the cape and Odessa is safe to approach to within 3 or 4 cables' lengths. A very conspicuous mill, several church spires and domes, may be seen as the bay is neared, and the lighthouse on Cape Fontana will be con-

cealed from view by a projection of the land called the Little Fontana.

46. The city of Odessa, though not immediately at the mouth *Odessa.* of any great river, is on the shore which is a continuation of that of the channel or estuary receiving the streams of the Dniepr and the Búg, and within a few miles of the mouth of the Dniestr. It is likewise well situated with regard to the Danube, being little more than 95 miles from the Sulina mouth, and it has a clear navigation to the Bosphorus, in which it can successfully compete with any of the northern ports in the Black Sea. It has no natural harbour, and is dependent on the commercial advantages of its site, and the privileges accorded to it as a free port.

"The city is situated upon a hill, which descends rather abruptly, and principally towards the sea. It has a population of about 80,000 persons, consisting principally of the garrison, visitors who come for bathing, merchants, and others engaged in the export of corn (chiefly rye), tallow, and wool. Millions of shells, of which the steppe limestone is composed, are here consolidated into a tolerably solid rock, on which wooden barracks are erected, besides splendid palaces. It is to be regretted, that notwithstanding the clear autumnal atmosphere, a grey mist spreads over the city in consequence of the quantity of dust, and never affords a clear prospect. This mist consists of the finest particles of the steppe limestone, and has a still more unpleasant effect, as it is extremely injurious to the eyes, especially to those of strangers, frequently producing serious inflammation.

"The city has a pleasing aspect both in the interior as well as from the outside. In the direction of the sea it is particularly ornamented by a row of splendid houses and palaces, which would do honour to the finest city. A handsome walk, planted with trees in the form of an avenue, occupies a considerable space between this row of houses and the ridge of the hill, where it descends somewhat precipitously.

"A flight of steps, of much magnificence, leads down the declivity to the shore and harbour. It is about 200 feet broad, which, however, appears disproportionate to the height of 80 feet. The blocks of stone of which the steps are composed are supported by lofty arches, and the space between is

open for traffic. Though many parts of this wide-spread city are inanimate, a most active scene is presented on the shore ; hundreds of waggons constantly fetching goods, a smaller number carrying them away, and thousands of men occupied in re-establishing communication between the West and East of Europe. The city has two suburbs, one of which is at the foot of the hill ; besides this, twelve villages are included in Odessa. A simple wall surrounds the city, rather to prevent fraud in payment of the tolls than as a means of defence.* Strong works were thrown up in 1854-5.

Harbours.

47. The harbours are formed by two moles dividing the bay into three parts, and which render the south and S.E. winds less destructive. That to the north forms the Imperial Port, and that to the southward the Quarantine Port, with a roadstead between them. Every non-Russian vessel, even though not coming from a suspected place, is sent to the former port, and special limits are assigned for those who have to undergo quarantine.

Quarantine Port.

The Quarantine Port is formed by a mole 870 yards in length, arched to the N.W., and the Pluto Pier, 370 yards in length, which is curved towards the head of the mole, and serves as a wharf for barges to discharge ships' cargoes. The entrance is 260 yards in breadth, and the port is capable of containing 200 vessels ranged in tiers. A small octangular building stands on the mole head, of a light yellow colour, with a like tower on the top, on which a mast is fixed with a white flag-staff, carrying a yellow flag during the day. Two vertical lights are hoisted at night on the staff, four yards apart, the one 86, and the other 74 feet above the sea, which may be seen in clear weather at the distance of 10 to 11 miles. Near the head of the mole there are 21 feet water, and at the entrance 17 feet, but this depth decreases gradually to 5 feet, so that vessels cannot approach that part of the shore occupied by warehouses, the office of the harbour-master, and the quarantine buildings.

Mole Head Lights.

Imperial Port.

At a good half mile to the N.W. of the Pluto Pier, and beyond the grand staircase, which reaches from the summit of the cliff to the beach, and near a second ravine, lies the Imperial

* Extracts from the Journal of a Tour in the Crimea and Odessa, by Dr. Charles Koch.

Pier, forming the Imperial Port, and used only by vessels in pratique. It curves to the N.W., and is 437 yards in length, but near the pier-head there are only from 10 to 12 feet water, and the pier is only long enough to accommodate from 4 to 5 vessels of light draught. The rest of the harbour has a depth only for small vessels or flat-bottomed boats, and one place is so choked up with mud that even boats are unable to use it. As the vessels' anchors lie so near the surface, it makes it dangerous to move either in or out of the port, except with smooth water, and then great precautions are necessary to avoid the flukes. These inconveniences, and the serious losses that occur from the N.W. and N.N.E. winds, although they blow off shore, and likewise the heavy sea sent in with N.E. and E.N.E. winds, make the commerce of the place suffer considerably, especially the coasting trade, and the more so as the communication both by sailing and steam-vessels has considerably increased of late years.

At 480 yards beyond the Imperial Pier, a new jetty, of 340 yards in length, has lately been constructed, to serve for heaving vessels down, and to preserve the Imperial Port from being completely filled up with mud and earth, which is carried from the plain of Peresip, and also with the ballast which is thrown overboard in the offing by vessels in pratique. In 1849 some works were commenced for improving this jetty, by an elbow 300 yards in length, in the direction of the Imperial Pier-head, leaving between them a narrow passage of 63 yards, which partly protects the vessels in the Imperial Port from the northward, but the sea from the N.E. and E. will always penetrate, when they often suffer from the recoil of the surge. Dredging machines are sometimes employed, and a greater depth given to this part, but it is doubtful if sufficient will be obtained, as the depth outside the narrow entrance is not more than 13 feet.

48. Vessels in quarantine anchor to the north-eastward of the Quarantine Mole, in any convenient depth, from 8 to 4 fathoms, over a bottom of mud and weeds. They can also anchor to the northward of the mole, in from 4 to $3\frac{1}{2}$ fathoms, but it is not prudent to do so, as they would run some danger in striking on the anchors lost there every year, and should it blow hard, a short sea runs in, which causes them to roll very heavily. The best anchorage is abreast of the first ravine of

anchorage

the city, in front of the custom-house, which is surrounded with buildings. [See Plan.]

Odessa Bay.

49. The Bay of Odessa is extensive, and the depth of water quite sufficient for the largest ships, but it is more or less exposed to the two most dangerous winds that blow on the coast from the south and S.E. They are uncommonly violent during the equinox, and are the chief cause of the havoc committed in the Black Sea. The three great rivers, the Búg, Dniestr, and Danube, also bring large masses of water to the sea from opposite points of the compass; and if a south or S.E. wind is blowing, produces the so-called *hacking* waves.

South and S.E. winds.

These dangerous winds do not frequently occur in the summer, for a northerly wind blows almost without intermission at that season. Though less injurious to the vessels, it is extremely unpleasant to the inhabitants of the town, since, especially during the hot days of July and August, it brings the dust from the parched plains and steppe, occasioning insufferable heat, which is only slightly diminished in the evening. Vessels lying in the roads should always keep their spare anchors ready to let go, as they may part in the heavy squalls. Should both cables part, a boat, employed by Government, will bring out an anchor and cable, on a signal of distress being made.

Peresip Plain.

The sandy plain of Peresip lies at the head of the bay, and is formed between two salt lakes, separated by some table land. A suburb of Odessa stands on the plain to the northward of the town; from thence the shore curves to the N.E., towards Dembrovskoi Point, which bears N.E. $4\frac{1}{2}$ miles from the Quarantine Port. The greatest depth at the entrance of the bay is 8 fathoms, which gradually decreases to the shore, but vessels of light draught, in turning to windward should not stand towards Peresip beach into less water than $2\frac{1}{2}$ fathoms, which depth will be found at half a mile distant, and also take care to avoid the rocks and foul ground that extend off to the southward from Dembrovskoi Point. The bay is not considered open to navigation for foreign vessels till May, and they must leave before the end of October, or run the risk of being ice-bound. [See Chart, Odessa to Kherson.]

Dembrovskoi Point.

CHAPTER III.

NORTHERN SHORE; FROM ODESSA TO KERTCH STRAIT.

50. FROM Dembrovskoi point the coast trends to the eastward *Adjak Point.* for 22 miles, to Adjak point, forming a long, but not a very deep, bay, which has a depth of 5 fathoms varying at from one $\frac{1}{2}$ to $1\frac{1}{4}$ miles from the shore. The coast is of moderate height, steep, and of a reddish appearance, but a few lakes, separated from the sea by small bars of sand, break its uniformity.*

51. Ochákov point, which forms, with the sandy promontory *Ochákov Point.* of Kinburn, the entrance to Kherson or Dniepr Bay, bears E. $\frac{3}{4}$ S. $8\frac{1}{4}$ miles from Adjak point. On it are seen Fort *Fort Nikoláiev.* Nikoláiev, and a small town bearing that name, also the ruins of the ancient Turkish fortress of Ozú. The coast between them recedes considerably to the northward, and the island of Berezan may be seen with two beacons on it, lying $2\frac{1}{4}$ miles to *Berezan Island.* the eastward of Adjak point, of about half a mile in length from north to south, and a mile in circumference. Its shores are steep, and of a reddish tint, and from its south extreme a reef extends nearly half a mile to the S.E. A vessel cannot pass to the northward of this island, but she may make a long board in that direction when standing between it and Adjak point. There are from 20 to 14 feet water at about $1\frac{1}{4}$ miles from its eastern side, and good anchorage will be found at that distance to the westward of it.

52. A long bank of sand, called the Odessa Bank, extends to *Odessa Sand Bank.* the westward from Kinburn point to within 9 miles of Odessa, with irregular depths of from 17 to 24 feet on it. The depths to the southward decrease gradually from 7 to $3\frac{1}{2}$ fathoms to the edge of the bank, but the channel to the westward, which is maintained by the united currents of the Dniepr and Búg, carries a depth of from 11 to 12 fathoms, and that to the northward from 11 to 5 fathoms, over a bottom of mud and shell.

53. The southern coast of Kherson bay is low and sandy. *Kinburn Point.* and terminates to the westward at Kil-burún or Kinburn point, which is very narrow, almost on a level with the

* See Chart of Black Sea, Sheet 3 ; Odessa to Sevastópol.

sea, and subject to inundations. It lies S.W. by W. $\frac{1}{2}$ W., about $2\frac{1}{4}$ miles from Ochákov point, and from it a shoal spit extends a mile to the N.N.E. At 50 fathoms from the extremity of the spit a Light Vessel is moored, with a broad red stripe on her side, and carrying a red flag during the day. At night two vertical Fixed Lights are exhibited, at 35 and 23 feet respectively above the sea, which may be seen in clear weather at 7 miles. Kinburn Fort is $1\frac{1}{2}$ miles to the S.S.E. of Kil-barún or Kinburn Point.

Kinburn Light Vessel.

Kinburn Fort.

Kherson Bay. The entrance to Kherson bay is very much narrowed by the sand flat that extends off a good mile and a half to the S.W. from Ochákov point, and by the spit from Kinburn point. The channel in, carries the depths of 5, 7, 9, 13, 10, 6, and 4 fathoms, and to facilitate its navigation three pairs of beacons have been erected, two on Berezan Island, two at $2\frac{3}{4}$ miles to the N.W. of Ochákov point, and two at 5 miles to the S.E. of Kinburn point, bearing respectively from the Light Vessel about W. by N. $\frac{1}{4}$ N. $3\frac{1}{4}$ miles, N. by E. $\frac{3}{4}$ E. $2\frac{1}{4}$ miles, and S.E. $5\frac{3}{4}$ miles.

Beacons.

Entering the Bay.

A vessel proceeding into Kherson bay from about $1\frac{1}{2}$ miles to the southward of Berezan island, where she will be in the deepest water, should steer to the north-eastward, to get the beacons on that island in one bearing, W. by N., and then proceed to the eastward with them on that bearing, to the northward of the Light-vessel, till the two beacons to the northward are in one bearing N. by E. $\frac{3}{4}$ E. From this position, where the depth of 7 fathoms will be found, the two beacons in one on the southern shore must be steered for, bearing S.E., till Kinburn point bears W. by N. $\frac{1}{4}$ N., when the vessel should be edged gradually to the E. by N., and the depths will decrease from 8 to 3 fathoms' water. Having arrived as far to the eastward as to bring Ochákov point to bear W.N.W. $\frac{1}{4}$ W. steer E. by S., when a depth of from 3 to 4 fathoms will be preserved, bearing in mind that the northern shore of the bay may be approached much nearer than the southern, which is low and sandy. When abreast of the sandy point of Ajighiol, which is about $3\frac{1}{2}$ miles to the westward of the entrance to the River Búg, and which is bordered by a sand bank extending from it a mile to the S.S.W., steer about E.S.E. $\frac{1}{4}$ E., which will lead through the narrow passage at

Ajighiol Point and Bank.

1 $\frac{3}{4}$ miles to the southward of Stanislaus point, when, if in a vessel of great draught, steer to the north-eastward for Glubok, (Deep) where vessels which draw too much water for the Dniepr discharge and load their cargoes, and even here there are not more than 10 feet water at a cable's length from the shore.*

*Stanislaus
Point.
Glubok.*

54. The river Dniepr empties itself into Kherson Bay by nine mouths, three of which are the principal, and form clusters of islands covered with reeds, which are mostly uninhabitable. The mouth of the Kysim, which was the most navigable 30 years ago, is pointed out by Kysim point, which has a reddish appearance, and gives its name to this branch. It has about 7 feet water in it, and its shallows are marked out by buoys.

River Dniepr.

Kysim Mouth.

The principal mouth, at present used by coasting vessels, lies about 2 $\frac{3}{4}$ miles to the southward of Kysim Point. Its entrance is deeper than the preceding one, and in the stream there are from 25 to 37 feet water. The shallows are also marked by buoys.

Dniepr Mouth.

The town of Khersón stands on the right bank of the river, where it is half a mile in breadth and 50 feet deep. As the navigation of this river is difficult, the produce is carried by coasters to Odessa from Khersón, or direct from the place of produce, in bullock waggons. Here was formerly a dockyard, of which only a ropeyard remains. The naval station has been removed to Nikoláiev, and since Odessa has been made a free port, the commerce of Khersón has much diminished. Its population may be estimated at 20,000 persons. The river is frozen for about two months, from the middle of December to the middle of February. Sometimes a strong south wind will break up the ice during this interval, but with the returning wind from the northward it soon again becomes frozen over.

Khersón.

Population.

55. The entrance to the River Boug, or more correctly Búg, which throws its waters into Kherson Bay, is between Ajighiol and Bubli points, which bear W. by N. and E. by S. from each other, distant 10 miles. The river is from 1 to 3 miles in breadth, and in proceeding up its course is tortuous, the shores and points being bordered with sand flats, especially

River Boug.

* See Admiralty charts of the rivers Dniepr and Búg, scale $m. = 1\cdot4$ inches, and Black Sea, sheet 3, Odessa to Sevastópol. Scale $m. = 0\cdot17$; from the Russian Atlas, by Manganari.

on its eastern side, where in some places they extend out beyond the middle of the stream. The depths vary as far up as Nikoláev, from 20 to 60 feet.

Nikoláev. The town of Nikoláev stands on the eastern bank of the river, at 20 miles from its mouth, and at the junction of the rivers Ingul and Búg. It is the Russian arsenal of the Black Sea, where ships of war are built and launched into the Ingul, from which they pass into the Búg by a channel from 20 to 27 feet deep.

River Ingul.

Kinburn Bay. 56. The coast from Kinburn point continues low and sandy to the S.E. for 12 miles, it then bends in to the eastward, and forms the spacious Bay of Kinburn, which affords plenty of room for small vessels, in depths varying from 12 to 20 feet, over a bottom of mud and sand, and sheltered from N.W. and northerly winds. It is, however, but seldom visited. The entrance into the bay is about $4\frac{1}{2}$ miles in breadth, between the southernmost of the Dolghi islets, which extend $3\frac{1}{2}$ miles to the south-eastward from the north point of the bay, and its southern shore, but the channel is only $1\frac{1}{2}$ miles wide, and carries a depth of 2 and $2\frac{1}{2}$ fathoms. The usual anchorage is about 2 miles to the eastward of Dolghi island.

Dolghi Islets.

Anchorage.

Tendra Peninsula. 57. The long sandy plain already mentioned in Art. 53, which terminates to the westward at Kil-burún or Kinburn point, is bordered to the southward by two long strips of sand, called the Tendra Peninsula and the Jarilgátskaia Spit. The former is about 36 miles in length, and at its northern extremity about $1\frac{1}{2}$ miles in breadth, but as it trends to the eastward it gradually narrows to less than a quarter of a mile. Two narrow channels or breaks, of about a cable in breadth, separate its eastern end from the main land.

Tendra Light. At 3 miles to the southward of Tendra point, and S. $\frac{1}{4}$ W., $13\frac{1}{2}$ miles from Kinburn fort stands the Tendra Light-house, a white building on the western side of the beach, 79 feet in height from the base to vane. In time of peace it exhibits a Revolving Light every minute at 84 feet above the sea, which may be seen in clear weather at 10 miles; a bell is sounded in foggy weather.

Beacons. The land of the peninsula being very low, three beacons have been erected, $52\frac{1}{2}$ feet in height, and painted red. The first stands on its northern extremity, and has a head formed thus Λ . The second stands about $8\frac{1}{2}$ miles to the S.E. of the

lighthouse and has a head like the letter V; and the third is about $18\frac{1}{2}$ miles to the eastward of the second, and is surmounted by three cross bars thus Ξ .

There is good anchorage in Tendra Bay to the eastward of the lighthouse, in about 5 fathoms, at $2\frac{1}{2}$ miles from the shore, well sheltered from the south and west, as far round as N.W. by N., but the bay is open to the N.N.W. The space formed to the eastward, between the eastern part of the peninsula and the main land, is very shallow, having only a depth of from 10 to $1\frac{1}{2}$ feet in it.

Tendra Bay.

If a vessel, when bound to Odessa, is caught with strong northerly winds, she may anchor to the southward of the peninsula, in any convenient depth, as the shore is clean. There are from 27 to 32 feet at from $1\frac{1}{2}$ to $3\frac{1}{2}$ miles from it, and from 7 to 9 fathoms at $1\frac{1}{2}$ to 2 miles to the westward of the lighthouse, over a bottom of sand and shells. When 25 to 30 miles to the southward of the peninsula, the shells brought up in the arming of the lead are broken, perforated with holes, and full of mud, but this peculiarity changes as soon as a vessel has passed to the westward of the meridian of the light-house, where the bottom is composed of whole shells, embedded in clean sand. The above remarks may be useful to the seaman in thick weather, when the lead should be kept constantly going, as no dependence then can be placed on seeing the land, which is extremely low, and not visible sometimes in fine weather at more than 3 or 4 miles distance.*

Anchorage in northerly winds.

Peculiarity of bottom to the southward.

58. The coast to the eastward of Tendra peninsula continues low, and runs in the same direction to the eastward for 14 miles, with some high buildings on it; from thence a long strip of low narrow land, called the Jarilgátskaia Spit, extends in the same direction for 21 miles to Jarilgat point, and forms, with the main land, a deep bay to the westward, affording a capital anchorage for vessels seeking shelter from W. or S.W. winds. The western end of the spit is not more than a cable's length across, but its breadth gradually increases to the eastward where in some places it is nearly 2 miles.

Jarilgátskaia Spit.

Anchorage in S.W. gales.

A vessel in rounding Jarilgat point must be careful to avoid the shoal which extends from it a good mile to the north-eastward, and is the beginning of a flat, carrying a depth of from

Jarilgat Point.

* See plan of Tendra Peninsula. Scale $m = 0.3$ of an inch.

7 to $1\frac{1}{2}$ feet, and which encircles the whole shores of the bay. The best anchorage is in the middle of the entrance, in $4\frac{1}{2}$ fathoms, over a muddy bottom, at about 3 miles to the northward of the point.

*Gulf of
Perekop.*

Karkinit Bay.

*Perekop
Isthmus.*

59. The Gulf of Perekop is formed between the Jarilgát-skaia spit and the N.W. shores of the Krimea. It is about 40 miles wide at its entrance, and carries a depth of from 17 to 6 fathoms, but its inner part to the eastward, which is called Karkinit Bay, is very shallow, with several shoal patches in it. Captain Spratt, who visited this bay in December 1854, says, "The result of our several soundings showed that the head of the bay, leading up to the isthmus of Perekop, is not even navigable for boats, and that even a moderate sized vessel cannot approach within 14 miles of it."

60. The KRIMEA in extent is about 178 miles from east to west, and 107 miles from north to south. Its figure is quadrilateral, the sides of which are respectively directed to the N. E., N. W., S. W., and S. E., and the angles to the cardinal points. From the eastern point, however, a peninsula stretches out between the Sea of Azov and the Black Sea, terminating on the shores of Kertch Strait. On three sides the Krimea is enclosed by the Black Sea; on the N. E. it is washed by the Sea of Azov. Its area may be about 8,600 square miles, and the neck of land at its northern extremity, by which it is connected with the continent, is about 20 miles in length, and 5 miles across at Perekop. Its north-eastern division is a steppe, and has neither tree nor hill, but its southern part presents a far different appearance, the mountains rising to a considerable height, and encircling valleys of great beauty and fertility.

*Karamrun
Point.*

The north-western part of the Krimea is about 64 miles in length from Korkazák to Karamrun point, and is formed of elevated plains, which may be seen at a good distance, and its shores are bold and steep.

*Akmechet
Harbour.*

61. The harbour of Akmechet (or white moske) lies 12 miles to the N. E. by E. of Karamrun point, and is much frequented by vessels running between Odessa and the Krimea. It may be recognized by a high white tower on the western point of the entrance, which is about two thirds of a mile wide, but is narrowed to half a mile by the rocks, which border the points,

and which must be given a berth of $1\frac{1}{2}$ cables' lengths. The harbour is about three quarters of a mile in depth, and has a village on its southern shore, which, on entering, must be steered for on a S. by W. $\frac{1}{2}$ W. bearing. The best anchorage is about 4 cables' lengths to the N.E. by N. of the village, in about 5 fathoms, on a sandy bottom, midway between its two inner points, which are also bordered by rocks. Between the village and the inner point, on the western shore, on which stands the Quarantine Office, the coast recedes a good half mile to the S.W., and forms a cove, in which small vessels may anchor in from 3 to 2 fathoms sandy bottom, well sheltered from N.W. and N. winds, which they would be exposed to in the harbour.*

62. Cape Tarkan bears from Karamrun point S. $\frac{1}{4}$ E. *Cape Tarkan.* 3 miles, and between them the coast falls back to the eastward, and forms a little bay, open to the westward, at the head of which is the valley of Karaji. The bay is remarkable for its beach, *Karaji Anchorage.* its trees, and its village, abreast of which a vessel may anchor in $5\frac{1}{2}$ fathoms, over a bottom of mud and sand, taking care to avoid a sunken rock, not far from the shore, towards the middle of the beach. *Sunken Rock.* Protection is given to this anchorage from northerly winds by Karamrun point, and from those from the southward by a rocky bank which extends out nearly a mile *Rocky Bank.* to the westward from the low point of the Cape, but it is open to the eastward. There are 10 fathoms on this bank at half a mile from the shore, but it should not be approached, as it is dangerous. A lighthouse has been erected on the S.W. *Tarkan Light.* extremity of Cape Tarkan, 110 feet in height, and carrying a Fixed Light at 117 feet above the sea. It may be seen in clear weather at the distance of 12 miles from S.S.E. $\frac{3}{4}$ E. by the westward, to N.N.W. $\frac{3}{4}$ W. Near this cape are often experienced changes of wind, squalls, or sudden calms, when the current makes the sea short and broken. Off the cape the wind generally hauls round to the N.E. during the night.

In passing Cape Tarkan, or the Gulf of Perekop, a strong *Current.* current will be felt setting to the eastward with westerly winds, and to the westward with easterly winds, which must be carefully watched, in order to profit by its variations. If a vessel, on her way to Odessa, should meet with a continuance

* See Admiralty plan of Akmechet Harbour. Scale $m = 4\cdot2$ inches.

of westerly winds on this coast, she should at once make long boards, and endeavour to get over on the western shore, instead of trying to turn to windward, along the peninsula of Tendra. A change takes place in the colour of the sea off Cape Tarkan, from a bright blue to a dirty and dark green, and the tint gradually deepens as Odessa is approached.

Uret Point.

63. From Cape Tarkan the coast runs to the E.S.E. for 7 miles to Uret Point, where the shore forms an angle of white bold rocks. The point has shoal water off it, and the depth of 5 fathoms only will be found at nearly half a mile to the southward. There is anchorage to the eastward of the point in about $8\frac{1}{2}$ fathoms, over sand and mud, well sheltered from all northerly winds. The coast from Uret Point bends in to the eastward for 9 miles, and then trends to the S.E. for 21 miles, to Eupatoria point, preserving a depth of 10 fathoms at $1\frac{1}{2}$ miles from the shore. As the point is approached, the coast does not present so high or bold an appearance.

Anchorage.

Eupatoria Point.

64. From Eupatoria point the coast again bends in to the eastward for 7 miles; it then trends to the southward for 22 miles, where it makes a short turn to the westward to Cape Lukul, thus forming the Bay of Kalamita. The shore of the bay is clean, and a depth of 5 fathoms will be found at $1\frac{1}{2}$ miles from the coast, with the exception of some foul ground bordering Eupatoria point and a shoal which extends a good mile from the coast a little to the southward of Staroe Oukeplenie or Old Fort, now noted as the point of disembarkation of the allied troops on the 14th September 1854.

Kalamita Bay.

Foul Ground.

Eupatoria.

Eupatoria or Koslov stands on a low, flat, and sandy country in the northern bight of the bay. A little to the westward of the town the low point of the lazaretto projects to the south-eastward, and is bordered by a sand bank which runs out $2\frac{1}{2}$ cables' length to the S.E., where a depth of 3 fathoms will be found. This bank affords a protection to small vessels from the sea, which rolls in with a south-westerly wind.

Inner Anchorage.

They anchor in about 3 fathoms over a sandy bottom, at a quarter of a mile from the town, and to the S. or S.S.E. of a church which stands near a large moske, not far from the beach. This roadstead is dangerous during S. and S.E. winds, although the latter blow from the shore. With the moske bearing N.N.W. there are 3 fathoms at half a mile from the shore. Coasters can approach very near the shore,

and they even make fast to a wooden pier, where there are 7 and 8 feet water. Vessels lying in the roads moor east and west, over a mud bottom, with open hawse to the southward.* There are several windmills between the lazaretto and the town, and also between the town and the great salt lake, named Sasik, which covers a considerable extent of ground, to the south-eastward, and is separated from the sea by a narrow neck of land. To the south-eastward of the town may also be seen the summits of several mountains on the southern coast of the Krimea, the most remarkable being Chádir Dagh. [See Plan.]

Anchorage in Roads.

Sasik Lake.

Chádir Dagh.

To the southward of Sasik Lake the coast becomes more elevated, and rises gradually to Cape Lukúl, which forms a remarkable projection, its sides being nearly perpendicular, of little elevation, and of a reddish tint; it is bordered by a flat which extends off a full mile to the northward. At 5 and 2 miles respectively, north of the cape, the small streams Búl ganak and Alma fall into the sea, the latter memorable for the sanguinary battle fought on its banks on the 20th September 1854

Cape Lukúl.

The coast from Cape Lukúl runs to the southward for 13 miles to the entrance of the harbour of Sevastópol, the shore being fronted by red cliffs, and divided by two thickly wooded valleys, through which flow the rivers Kacha and Belbek. A large church is conspicuous in the valley through which the Belbek runs, and mountains rise in triple rows to the eastward, the table-lands of their summits, with their white edges, giving them the appearance of fortifications; the Chádir Dagh, or Tent mountain, towering above all to the height of 5,135 feet above the level of the sea.

Rivers Kacha and Belbek.

65. The western coast of the Krimea is terminated to the southward by a small low peninsula, the extremity of which is called Cape Khersonese. The cape is bordered by a reef running

Cape Khersonese.

* During the heavy gale of the 14th November 1854, the sea ran very high in the roadstead of Eupatoria, but those vessels anchored near the town experienced a current or undertow setting out of the bay, which although it caused them to labour greatly, and to ride broadside to the wind, yet it took great strain off their anchors and cables. The ships lying farther out and more to the southward did not feel this current, and several of them, including one French and one Turkish line of battle ship, and a French steamer, broke their chains and were thrown on the beach —Remarks by Commander J. P. Luce, H.M.S. *Lynx*, Dec. 1854.

out about $2\frac{1}{2}$ cables' lengths to the westward, at the edges of which there are 6 fathoms' water. Feolent point, open of Cossack point, clears it to the southward; and Fort Konstantine, open of all the points of the Khersonese bays, clears it to the northward.

Lighthouse.

A lighthouse, 113 feet high, stands upon the extremity of the cape, at only a few feet above the sea level, and forms a conspicuous mark by day. A pale Fixed light, instead of a revolving one as formerly, is now (1855) shown at an elevation of 116 feet above the sea, but it is not visible beyond the distance of 7 miles. There is good anchorage to the southward of the lighthouse with E., N.E., and N. winds.

66. The coast from Cape Khersonese trends to the E. by N. for 6 miles to the entrance of Sevastópol Harbour, and has several narrow and deep inlets or bays, open to the northward, and where, in case of need, vessels may anchor. The first to the eastward of the cape is named Dvóinaya (Double) or Kazáchaya (Cossack) bay; the second, Kamishóvaya (Reedy); the third, Peschánaya (Sandy); the fourth, Strelétskaya (Arrow); the fifth, Khersonéskaya (Khersonese); and the sixth, Karantínaya (Quarantine) bay.

*Kazach and
Kamish Bays.*

67. Dvóinaya or Kazach and Kamish bays, says Captain Spratt, form the first large opening to the eastward of the cape. There is anchorage in from 15 to 20 fathoms, at a distance of half a mile off the entrance, on a bottom of muddy sand, where a stranger, if bound in, should bring up, or lie to, until communicated with.

Sunken Rocks.

In entering Kazach or Kamish bays, the north-west point and the middle point that separates them (which may now be recognized by an earth battery upon it), should not be approached nearer than $2\frac{1}{2}$ cables' lengths; and no vessel should run up the western or Kazach Bay without a pilot, for this Double bay, which looks clear and wide from outside, has a reef of sunken rocks extending nearly 3 cables' distance in a north direction from the tongue of land which divides the head of the bay into two parts.

The channel on either side of this sunken reef is only from half to three quarters of a cable's length wide; has a depth of from 7 to 9 fathoms, with a bottom of stiff sandy mud; as also in the upper part of Kamish Bay. In the outer part of these bays the ground is less tenacious, being a muddy sand

with gravel and shells; and no anchor will hold in a less depth than 7 fathoms.*

68. *Peshánaya Bay* lies a mile to the eastward of Kamish, but as the water in it is very shallow, vessels anchor off its entrance in from 6 to 10 fathoms. A small island lies near the head of the bay with foul ground around it.

Streletskaya Bay, which is a good mile to the eastward of *Peshánaya*, is long and narrow, and carries a depth of from 6 to 10 fathoms. It is about $1\frac{1}{4}$ miles deep, but not more than 2 cables wide at its entrance; a reef, called the *Streletskaya* shoal, extends nearly 3 cables' lengths to the N.N.E. from the point which lies a quarter of a mile to the westward of the entrance.

Khersonese is a small sandy bay, about 4 cables' lengths to the eastward of *Streletskaya*, and has only a depth of 4 fathoms at its entrance. A reef extends nearly 2 cables' lengths to the northward from its eastern point.

Quarantine Bay lies about half a mile more to the eastward, and, as its name implies, is used by vessels performing quarantine. It is about 3 cables in length, from the depth of 10 fathoms at its entrance to 4 fathoms; from thence its form becomes very irregular to the southward, and affords shelter for small vessels from all winds in its numerous windings. The bay may be recognized by some ruined walls which stand on the shore to the westward of the entrance, by a cemetery surrounded by trees, and by the *Lazzaretto* on its western shore. The channel at the entrance is not more than $1\frac{1}{2}$ cables wide, between the depths of 5 fathoms that border its points, and which a berth of a cable must be given on entering, as they are surrounded with shoal water; and rocks run off nearly that distance from the eastern point, on which stands the *Quarantine Fort*. A patch of 4 fathoms lies about $2\frac{1}{2}$ cables' lengths to the northward of the entrance.

69. A vessel in rounding Cape Khersonese from the southward should keep *Feolent Point*, a high perpendicular cliff, open of a nearer and lower bluff, until the lighthouse on the cape bears E. by S. $\frac{3}{4}$ S., or *Fort Konstantine* is seen open of

* See Admiralty plan of the Khersonese Bays, by Captain Spratt and the officers of the *Spitfire*, 1855. Scale m. = 8·3 inches.

the north coast of the peninsula. Then an E.N.E. $\frac{1}{4}$ N. course will round the cape and all the shoal water off the points, none of the rocky ledges, (which it is difficult to know the position of, on account of the uniform appearance of the coast,) extending more than $2\frac{1}{2}$ cables off shore. As a general rule none of the points on the north side of the Khersonese Peninsula should be approached nearer than that distance.

Sevastópol.

70. The town of Sevastópol is the great Russian arsenal in the Black Sea, situated on the south-western coast of the Krimea, at almost equal distances, say 160 miles, from Odessa, the mouths of the Danube, and Sinópe. It stands on the southern side of the great harbour, between an inlet to the eastward which forms the Inner harbour, and the Quarantine bay to the westward. To the eastward of the inner harbour are the docks and the careening bay. The harbour has a great depth in its inlets, in some of which the largest men of war can lie close to the shore. On the northern shore the entrance is defended by Fort Konstantine, Sévernaya or North Fort, and several detached works; on the southern shore by Forts Alexander, Nikolas, and Paul, with the works of the town. The chief forts are in two or three tiers, and casemated. They mount 2,000 guns, and are provided with furnaces for heating red-hot shot.

Harbour.

71. The harbour or more properly roadstead of Sevastópol is open to the westward, and is nearly 4 miles in length, and about three quarters of a mile wide at its broadest part. Its situation as a naval port is justly esteemed, and, indeed, Europe presents few harbours so completely suited to the necessities of a large fleet. It carries a depth of from 10 to 6 fathoms in mid-channel, over a muddy bottom, to within three quarters of a mile from its head, where it becomes more contracted and shallow.

*In-kermán
Lights.*

72. In order to facilitate the passage into the harbour two lighthouses have been built, 48 feet in height, on two hills to the eastward, and when in one, bear E. by S. and W. by N., distant $1\frac{3}{4}$ miles. The eastern lighthouse stands near the town of In-kermán, and shows a Fixed Light at 612 feet above the sea, which may be seen in clear weather at the distance of 28 miles. The western lighthouse stands at the head of the harbour, near Mackenzie Gorá or Hill, and also carries a Fixed

Light at an elevation of 402 feet above the sea, which may be seen at 23 miles. The lights are both screened, so as to show only in the line of the course up the harbour, namely E. by S.

73. Cape Konstantine, the north point of the entrance, may be recognized by a telegraph station and the round Fort of Konstantine, with a triple row of casemated batteries, standing on a low point which the cape throws out 1,400 feet to the southward. The cape is fronted by a rocky shoal, extending half a mile to the W. by S. to the depth of 4 fathoms. One fathom water will only be found at 3 cables', and 5 fathoms at 6 cables' lengths, in that direction from the cape. A white beacon marks the edge of the shoal in 8 fathoms. A vessel must give the southern point of Fort Konstantine a berth of a cable's length, at which distance there is a depth of 5 fathoms.

Cape Konstantine and Fort.

White Beacon.

74. To the eastward of Quarantine Bay, the shoals on the southern shore of the harbour become more dangerous, and extend farther to the northward. The Quarantine Fort stands on a double point, to the eastward of the bay, and is fronted by a reef, extending a cable's length, to the depth of 4 fathoms, in a N.W. direction from the western point, and $2\frac{1}{2}$ cables to the north-eastward from the eastern point. A red beacon in 8 fathoms marks this extremity.

Southern Shore of Harbour.

Quarantine Fort and Reef.

Red Beacon.

At 2 cables' lengths to the eastward is Fort Alexander, which stands on a point projecting farther to the northward, and forms, with Fort Konstantine, the entrance of the harbour, barely half a mile wide, and which is reduced to 3 cables in breadth, between the depths of 5 fathoms. There are only 4 fathoms' water at a cable's length to the northward of the point, and 8 fathoms' at $1\frac{1}{4}$ cables' lengths.

Fort Alexander.

Three cables' lengths farther to the eastward, at the foot of a steep point, on which stands a formidable battery, it is requisite to give the shore a berth of $1\frac{1}{2}$ cables, as the depth of 4 fathoms only will be found at that distance to the northward of the point. A vessel may, however, approach nearer this point in entering Artillery Bay, which lies 4 cables' lengths to the eastward of Fort Alexander, and which carries a depth of 6 fathoms at its entrance. This bay, as well as that to the eastward, is sheltered from northerly winds by the opposite shore, and 30 years ago it was 4 cables in length, and more than a cable broad, but it has gradually filled up, and will soon

Artillery Bay.

cease to be used by trading vessels, for which it was intended. Vessels at anchor in it during N.W. or W. winds, suffer much from the ground swell, which often causes serious damage. A portion of the town of Sevastópol stands at the head of the bay.

The rising ground of white rock, which forms the promontory on which Sevastópol is built, is 240 feet in height, and separates Artillery Bay from the inner harbour.

Fort Nikolas. Nikolas, with its triple battery, stands on its low extremity, which is bordered by a dangerous reef, extending half a cable from the shore, which must be carefully avoided, and a berth of a cable's length given to it on entering Artillery Bay.

Inner Harbour. 75. To the eastward of Fort Nikolas lies the Inner Harbour, between two steep hills, by which it is commanded. This safe anchorage, only used by ships of war, is about $1\frac{1}{4}$ miles in length from north to south, and 2 cables wide at its entrance, which is formed by Fort Nikolas and Fort Paul. It carries a depth of 6 to 9 fathoms, and its shores are steep-to. Hulks for convicts, and vessels unfit for service, lie at the head of the harbour, where the depths are only 6 and 4 fathoms. The dockyard is in a little creek, formed on the eastern shore, near the entrance.

Docks. The docks here are five in number, two for 1st-rate ships, one for an 84-gun ship, and two for frigates; the gates are respectively 64, 54, and 45 feet wide; they open out of a basin, of about 2 acres area, at a level of 30 feet above the sea, to which, as there is no tide, vessels are raised by three locks, having a lift of 10 feet each and a width of 64 feet; the bottom of each dock is sufficiently above the sea, so that it may be run dry. The basin is supplied with water by a small canal from the Chérnaya or Black river, which it leaves at a level of 62 feet above the sea. The masonry of the docks is of granite and freestone and of good workmanship. The dock gates are of iron, as timber and all vessels not coppered suffer much from the ravages of the *Teredo navalis*, which is very destructive in these waters.

Fort Paul. Fort Paul stands on the eastern point of the entrance, which is fringed with rocks; from thence the shore runs a mile to the eastward, to the entrance of the Kilinbánochnaya or Careening Bay, which has only a depth of 4 fathoms in it.

River Chérnaya. 76. The Chérnaya or Black River, which has its course

through the beautiful valley of In-kermán, empties itself into the head of the harbour, at about $1\frac{1}{2}$ miles to the eastward of the Carcening Bay. A great deal of mud has formed at the head of the harbour to the extent of half a mile.

The northern shore of the harbour bends round to the westward from the Chérnaya, and is much less indented than the southern shore, and safer to approach. There is secure anchorage for small vessels in $2\frac{1}{2}$ or 3 fathoms near the hill, on which stands the western lighthouse; and to the westward lies a snug cove called Sukhárnaya Balka (Biscuit Ravine), in which are the navy bakehouses. Sufficient depth and a secure anchorage will also be found in two coves farther to the westward. At the bottom of the first is a timber shed, called Gholándaya (of Holland), and the name of the other is Panioto Creek. The next cove to the westward is very small, and called Kurínaya Balka (Smoking Ravine), which is followed by a low and bold point, defended by a battery. Two other coves follow, (separated by a little point), named Sukháya Balka (Dry Ravine) and the Sévernaya (North Ravine). The latter faces the town, and is used by merchant vessels to discharge their cargoes. It is open to the W.S.W., and has a depth of 4 fathoms close to the shore.

*Northern Shore
of Harbour.*

At a cable's length to the westward of Sévernaya cove stands a new fort, beyond which, for three quarters of a mile, to Fort Konstantine, the water shoals from 1 to 2 fathoms at 1 to 2 cables' lengths from the shore. In ordinary weather, and especially during the summer months, the sea breeze blows every day from 9 or 10 A.M., and a land wind follows after sunset.

77. From Cape Khersonese, which has been already noticed (in Art. 65), the coast is steep-to, and trends to the S.E. for 7 miles, to Feolent Point, which is a high perpendicular cliff, black at its lower part, but capped by a white calcareous stratum that inclines gradually to the cape, which is low, the base of the lighthouse at its extremity being only a few feet above the level of the sea. A sunken rock lies close to the point.

Feolent Point.

*Appearance of
the Coast.*

From Feolent Point the coast becomes more elevated, and bends in to the eastward, forming a small bay, where the shore is clean and the water deep. Vessels are sometimes induced to anchor there in N.W. or W.N.W. winds, in about 25 fathoms'

water, to the southward of the monastery of St. George, which stands at half a mile to the eastward of the point.*

Balaklavah.

78. The entrance to Balaklavah harbour lies about $4\frac{1}{2}$ miles to the eastward of Feolent Point, and may be recognized by some old ruined towers on its eastern point. The port, which is exceedingly picturesque, is enclosed by steep and rocky hills, of a reddish colour, and is about three quarters of a mile in depth, including its windings from north to south, and only 120 yards in breadth at its narrowest part; but nearly a fourth of it is filled up with a muddy flat, which has been carried into the head of the port by a rivulet running through a valley to the northward. It carries a depth of from 15 to 24 fathoms in the channel at its entrance over a gravel bottom, 6 to 8 fathoms in its narrow part, 7 fathoms abreast of the town and 3 fathoms at nearly 2 cables' lengths from the head of the port, over a muddy bottom, where the mud flat mentioned above has only from 6 to $1\frac{1}{2}$ feet on it. A small islet, bordered by rocks, lies 2 cables' lengths from the head of the harbour, at about 70 yards from the western shore. The town stands on its eastern shore, and is inhabited by the descendants of the Greeks of the Archipelago, who are engaged in the fishing and coasting trade.

Mud-flat.

Islet.

A vessel about to enter the harbour should steer for the ruined towers on the eastern point, and on a near approach, the entrance will open out to port, which is about $1\frac{1}{4}$ cables wide,

* Coming from the S.W. towards Sevastópol, the land is very remarkable, forming three capes or headlands. The southernmost, Cape Ayá, makes as a very high bold bluff, looking very much like the North Foreland, but much higher. The next to the northward, Feolent Point, is moderately high, with three notches like steps in it, and between these headlands lies the Port of Balaklavah. The northernmost, Cape Khersonese, is long and low, with a good lighthouse on it, but it must not be approached nearer than half a mile.—*Remarks by James Turton, Master, H.M.S. Blonde, Nov. 1829.*

A patch of sand with 7 to 12 fathoms on it lies at the foot of a sort of landslip about a cable's length to the eastward of the monastery of St. George. The "Lynx" anchored in 12 fathoms about a cable's length from the beach, well sheltered during a heavy gale from the N.E. on 29th of Oct. This anchorage might be of service to a steam vessel when waiting under the land, until a northerly or northeasterly gale moderates to allow her to round Cape Khersonese.—*Remarks by Commander J. P. Luce, H.M.S. Lynx, Dec. 1854.*

and bordered by steep rocks. Before entering, a boat is generally sent to make a hawser fast to the rocks at the western point of the entrance, and which should be neared under easy sail, taking care to avoid the sunken rocks which lie close to the southward of it.

Having entered, and steering to the N. by W., keep the western shore aboard, so as to have more room in case the wind should fail. At the first turning of the passage a few houses of the town will open out to the eastward, at the foot of a narrow ravine, when haul to the E.N.E. and N.E. as far as the second turning, which is the narrow part, and not more than 120 yards from shore to shore, and only half that breadth between the depths of 5 fathoms. The harbour from thence runs to the northward, the widest part being abreast of the town, where it is about $1\frac{1}{2}$ cables' length from shore to shore.

If on entering the harbour the eastern shore is kept aboard, give the point on which stands the ruined tower a berth of a quarter of a cable, as there are not more than 3 fathoms at half that distance from the shore. On rounding the point to the eastward proceed as before, as nothing is to be feared from this passage, the shores of which are steep and rugged, and make it appear more formidable than it really is.*

79. The coast from the entrance of Balaklalah curves to the southward, its appearance being that of a long wall of gigantic rocks about 1,500 feet in height, with a flat and wooded surface, the perpendicular extremity of which is Cape Ayá, which bears S.E. $8\frac{1}{2}$ miles from Feolent Point, and is remarkable for its height, steepness, and reddish appearance. Vessels sometimes anchor in the bend of the coast at about 2 miles to the S.E. of Balaklalah, and they may also shelter themselves under Cape Ayá during violent easterly winds, where it will be quite calm, but they will be drifted to the westward by the current, and sudden squalls sometimes come down through the narrow openings of the mountains near Balaklalah. [See Black Sea, sheet 4.]

Cape Ayá.

Anchorage.

80. Sarich Point, the most southern projection of the Crimea, is of moderate height, and bordered by bold and pointed rocks and a rocky bank of sunken rocks, extending $1\frac{1}{4}$ cables'

Sarich Point.

* See Admiralty plan of Balaklalah, by Captain Spratt and officers of H.M.S. *Spitfire*, 1854. Scale $m = 11\cdot2$ inches.

*Chubán
Kayá.*

*Laspynska
Bukhta.*

Water.

*Southern Coast
of Krimea.*

Cape Kirkin.

lengths to the southward, where lies a rock about the size of a boat, called Chubán Kayá (Shepherd's Stone) by the Tartars, which is often passed unnoticed, while at other times it assumes the appearance of a formidable projection. It lies about 4 miles to the E.S.E. of Cape Ayú, and the coast between them bends in to the eastward, and forms the little bay of Laspinskaya Bukhta, at the foot of some high mountains, which affords a good anchorage sheltered from the west, round by the N. to S.E. The most sheltered anchorage is at about $2\frac{1}{2}$ cables' lengths from the shore, in 10 fathoms' water, abreast of the small headland on the southern shore, on which stands a white house belonging to the coastguard. Coasters loading at this place approach nearer the shore at the head of the bay, and moor in about 4 fathoms over a muddy bottom, which shelves very much from the shore. It is said that at this anchorage the westerly winds seldom blow home; however, those from the S.S.W. are generally considered dangerous, and a vessel must have good strong hawsers made fast to the shore to secure her against the strong north-easters which sweep down the hills with great violence. The coast from Laspinskaya Bukhta to Sarich point is safe to approach, and at Kapkane a clear spring of water is found near the shore.

81. The southern coast of the Krimea forms two portions of almost two equal arches, the one projecting to the southward, between Cape Kheronese and Cape Ayú Dagh, the other receding to the northward, between the latter cape and Cape Meganom. The first, from Cape Kheronese to Yalta, is backed by table lands of bold rocks, almost washed by the sea; the second by mountains of less uniform height, their bases being removed farther from the water's edge. The whole coast to the eastward of Sarich Point to Cape Aitodor is bold to approach, with several little inlets, which afford shelter for vessels with westerly winds, and in the fine season they are protected from those blowing at sea by the mountains on the coast. A depth of 9 fathoms will be found at a cable's length from the shore, and 22 fathoms at two thirds of a mile distant. A vessel, however, must be on her guard against the sudden squalls to which some parts of this coast are subject.

82. Cape Kirkin, which bears E. $\frac{1}{2}$ S. $9\frac{1}{2}$ miles from Sarich Point, is a low and rocky projection, only recognized when run-

ning close to the coast. It is bordered by a few rocks, but they lie close to the shore.

83. From Cape Kirkin the coast trends to the E. by N. for about $6\frac{1}{2}$ miles to Cape Aitodor, which may be recognized by its lighthouse, and forms a projection between them, called Ilmen Point, which lies $2\frac{1}{4}$ miles from Cape Kirkin. Between Cape Kirkin and Ilmen point several large rocks point out the anchorage near the village of Semeis, where vessels lie sheltered from westerly winds, in about 3 fathoms, very near the shore, abreast of a beach on which are some houses and stores. About $1\frac{1}{2}$ miles to the eastward of Ilmen point, the village of Alupka comes in view, standing at the base of the angle of a steep flat rocky hill, 4,000 feet high, called Ai Petri, or Mount St. Peter, which turns suddenly to the northward. The village may be easily recognized by a Moorish castle, built of greystone, a church having the appearance of a Greek temple, a pretty moske, and other buildings surrounded by trees. Alupka is an estate belonging to Prince Woronzoff, much frequented by visitors. On the heights between Alupka and Cape Aitodor, and near Mount St. Peter, are several beautiful dwelling houses, and at the seaside an estate, named Miskhor, belonging to the heirs of General Narishkin. Small vessels can anchor between this and Cape Aitodor in a little cove, in 4 fathoms' water, at about three quarters of a cable's length from the shore, abreast of the last trees in the Miskhor garden, and sheltered from the westward.

84. Cape Aitodor* (St. Theodore of the Greeks) is the round extremity of a long, slightly-inclined tract of land, bordered by limestone rocks 311 feet in height. It is bold to approach, and on it stands a lighthouse, 38 feet high, exhibiting a Fixed Light at 343 feet above the sea, which may be seen in clear weather at 21 miles on all bearings, from west, round by the southward, to N.E.

85. From Cape Aitodor the coast trends to the N.E. by N. for $4\frac{1}{2}$ miles, to the small town of Yalta, it then turns to the eastward for about 4 miles to Nikitin Point, which bears

* *Ai* for *agio*, holy, in Greek ; and *Todor*, abbreviated from *Theodoro*.

N.E. by E. from the cape, distant $7\frac{1}{2}$ miles, forming an anchorage between them called Yalta Road.

The town of Yalta stands at the entrance of a valley, and its white houses and churches may be recognized a long distance at sea. Between Cape Aitodor and the town may also be seen the magnificent Imperial Palace of Oreanda, and the country house of Count Potocki (Pototski).

This small level spot upon the coast has been employed to lay out a town, which was intended as a medium of intercourse between the separate houses and estates of the neighbourhood, but it scarcely comprises forty houses, and only forms one street. The shopkeepers do not deserve the appellation, as they only supply the barest necessities of life, and are not in a condition to satisfy even the most modest desires beyond this point. The families resident on the southern coast of the Krimea are generally obliged to obtain what they want from Simferopol, and therefore require to provide themselves with necessary stores for a considerable time.—[Koch.].

Bank.

From Cape Aitodor the shore is bold to approach till abreast of Pototska, but from thence commences a bank of sand, which fronts the town of Yalta, and the extensive beach to the westward of it, and also borders the coast to the eastward. Its outer edge, in 5 fathoms, is about $4\frac{1}{2}$ cables to the southward of a rivulet, which furnishes excellent water, and runs into the sea a little to the westward of the town, but a depth of only $2\frac{1}{2}$ fathoms will be found on it at 2 cables' lengths to the southward of Joanna Point.

Water.

Joanna Point.

Road.

Yalta Road is frequented by vessels which meet with northeasterly winds when bound to Theodosia or Kertch Strait. It is open from E. to S.S.W., but although the winds from seaward rarely blow with any strength, yet the sea often rolls in with great violence, and vessels have been wrecked during the autumn months. It sometimes blows hard from the N.W.

The anchorage is about half a mile to the S.E. by S. of the town, in 10 fathoms, over sand and mud; but small vessels anchor abreast of the town, at about half a cable's length from the beach, in 3 fathoms, with the church which stands above the town bearing S. by W., or to the southward of the stone

bridge crossing the rivulet. The Tartars haul their vessels up on the beach.*

86. Nikitin Point is fringed by a few rocks, which extend *Nikitin Point* only three quarters of a cable's length from the shore; from thence the coast takes a northerly direction for $2\frac{1}{2}$ miles to the Tartar village of Urzuf, and then curves 3 miles to the east- *Urzuf.* ward to Cape Ayú Dagh, forming in the bend of the coast the road of Urzuf. The houses of the village stand one above the other in the form of terraces, near a rock on the seashore, on which are the ruins of old walls. To the westward is a country house and garden.

The anchorage in the road is in about 7 fathoms, over sand *Road.* and mud, at half a mile to the S.S.E. of the village. There is also good anchorage at a quarter of a mile from the shore, in about 6 and 7 fathoms water, between the village and two rocks, 170 feet in height, which lie three quarters of a mile to the eastward of it, and at 3 cable's lengths to the southward of a white point. The rocks are bold-to, having a depth of $5\frac{1}{2}$ fathoms in the channel between them, and $4\frac{1}{4}$ fathoms between the inner one and the white point. Between these rocks and Cape Ayú Dagh the shore bends in to the northward, and forms a cove, called Kiziltash, which is safe and deep. A vessel loading *Kiziltash.* here with granite for the works of Sevastópol suffered no injury from a S.W. wind, when it was blowing hard in the offing.

87. Cape Ayú Dagh (Bear Mountain), although much lower *Cape Ayú Dagh.* than the other mountains on the coast, is still remarkable both from its form and colour. Seen from the sea, its appearance is that of an island with a round surface, but when close in shore, and approaching it either from the eastward or westward, it is easy to perceive the form from which it has derived its name—namely, that of a bear lying down. The Greek islanders of the Archipelago call it the Camilla (Camel); it is probably the Kriu-metôpon or Ram-face of the ancients. Its summit, which rises about 1,800 feet, is covered with trees, and its perpendicular shores may be approached without danger, the water being deep all round. The current near this cape is *Current.* felt at its greatest force.

* See plan of Yalta and Urzuf Roads. Scale 1 m.=1 inch.

88. From Cape Ayú Dagħ the coast trends to the N.N.E. *Lampad Point.* for $2\frac{3}{4}$ miles to Lampad Point, which is a high bluff projecting to the eastward, and rising in a conical form to 200 feet above the sea. It is bordered by rocks, some of which are visible, and must be given a berth of a good cable's length. The coast *Partenitsa.* between forms a bay, in which are the villages of Partenitsa and *Kuchuk* Kuchuk Lambat; the former lies $1\frac{1}{2}$ miles to the northward *Lambat.* of the cape, and has a beach sheltered from the W. and S.W., with a brook flowing through it. Kuchuk Lambat stands in the bend of the coast formed by Lampad Point projecting to the S.E., and is remarkable for its pretty houses. The roadstead abreast of this village is in great repute amongst the *Anchorage.* Tartars. Vessels generally anchor in from 10 to 12 fathoms at 2 or 3 cables' lengths from the shore, but small vessels may anchor close in, with their anchors laid out to the S.E. and S.W., and their sterns secured with hawsers to the rocks bordering Lampad Point to the westward, and which form a kind of jetty which quite shelters them from the E.S.E., but they are exposed to all winds between S.E. and S.S.W. The S.W. wind often blows with violence through an opening formed by the Ayú Dagħ and the other mountains.

89. Between Cape Ayú Dagħ and Cape Meganom, which bear from each other E.N.E. $\frac{1}{2}$ E., and W.S.W. $\frac{1}{2}$ W. 34 miles, and form that portion of the southern coast of the Krimea which recedes to the northward, the shore is clean and safe to approach. At about 5 miles to the northward of Lampad Point is the village of Alushta, which stands at the entrance of an extensive valley, at the bottom of which rises Mount Chátir *Alushta.* Dagħ (Tent Mountain), to the height of 5,135 feet above the *Mount Chátir* sea, at 6 miles from the coast. This mountain, the highest *Dagħ.* in the Krimea, is remarkable by its form, and from its being insulated from the chain of mountains which it overtops. The *Anchorage.* anchorage is abreast of Alushta Fort, which stands near the village, at half a mile from the shore, in about 12 fathoms over a muddy bottom, but this roadstead is open to all winds from the E.N.E. round by the S. to S.S.W.*

90. At 5, 7, 10, 13, and 19 miles, respectively, to the N.E. of *Miliya Uzen,* Alushta, are the open roadsteads of Miliya Uzen, *Sierpata,* Sierpata,

* See plan of Alushta. Scale 1 m. = 1'2 inches.

Kuruk Usen, Tugak, Uskut, and Khanskar, which are more or less exposed to the E. and S.E., and the S. and S.W. winds; the bottom, however, affords good holding ground. At 3 miles to the westward of Khanskar, the coast forms a little projection called Choban Kal'éhsi, on which stands a ruined tower.

*Tugak,
Khanskar.*

91. At 7 miles to the eastward of Choban Kal'éhsi are two other projections, called Chiken and Koba points, and from thence the coast recedes to the northward, and forms, between the latter point and Cape Meganom, a large bight, called Sudak Bay, which is divided into three parts. The first division to the westward extends as far as the rock, on which are the towers of the ancient Soldaya; it is bounded by woody mountains, and several buildings are about it. The anchorage is in 9 fathoms, over a muddy bottom, and there are 6 and 7 fathoms at a cable's length from the shore, but it is open from the E.S.E. to S. by E. The second part of the bay is bordered by a long and wide beach to the eastward of the steep rock on which stands the fortress of Sudak, and at the entrance of a deep valley. The anchorage is in 10 fathoms, over a muddy bottom, at about half a mile from the shore, with Cape Meganom bearing about E.S.E., and Koba Point W.S.W. This is preferable to any other berth in the bight, as it is a good position from which to get under way.

*Choban
Kal'éhsi.
Chiken and
Koba Points.*

Sudak Bay.

Anchorage.

The third division is between Alar Point and Cape Meganom, and is but little known, for vessels seldom anchor in it, although it is sheltered from the W. by S. round by the N. to the S.S.E. A depth of 10 fathoms will be found a little distance from the shore.

Alar Point.

92. The mountain that forms Cape Meganom is of moderate height, but it may be seen at a great distance from seaward, on account of its projection to the southward. It is arid and even, and its sides form three angles. The coast all round is bold to approach, with a depth of 15 to 20 fathoms at half a mile from the shore.

Cape Meganom

93. After rounding Cape Meganom, the last great rocks of the Crimea will be seen to the N.E., called Kara Dagh (Black Mountain). It is high, with an irregular surface of rocks resembling towers, and with a considerable depth around it. At its foot, to the westward, lies the village of Otúz.

Kara Dagh.

Otúz.

94. From Kara Dagh the coast again trends to the northward

Koktebel Bay. for 3 miles, and then runs to the eastward for nearly 6 miles to Kiatlama Point, forming the picturesque little bay of Koktebel at the foot of the valley of that name. It affords excellent anchorage, but it lies open to the S. and S.E. The eastern side of the bay is formed by a narrow point projecting out half a mile to the southward, to the eastward of which, at a little distance from the shore, will be seen two white rocks, like boats under sail.

Kiatlama Point. 95. Kiatlama Point (Stag's Leap) projects to the S.E., and its extremity is formed by a little hill with steep sides, which being united to the coast by a low isthmus, gives it the appearance of an island when seen at any distance. A small portion of rock, detached as it were from its N.E. extremity, has the appearance of an inaccessible islet, its separation from the point being about the breadth of a stag's leap. The point is steep-to, and bold to approach.

Theodosia Point. 96. Theodosia Point bears from Kiatlama Point about N.E. by N. $3\frac{1}{4}$ miles, and the coast between them falls back 2 miles to the westward, and forms the bay of Tekiyeh, called by the Italians Porto Genovese. It is open from the N.E. round by the E. to S.S.E., and carries a depth of from 7 to 14 fathoms water over a mud bottom, at a quarter to three-quarters of a mile from the shore, which is bordered in some places by little ridges of rock lying close to the coast.

A little cove, which narrows the Isthmus, is formed at about three-quarters of a mile to the westward of Kiatlama Point. It is about half of a mile wide, and about a third of a mile deep, and has from 6 to 7 fathoms water at its entrance, over sand and mud, and 3 to 4 fathoms at a short cable's length from the shore. The N.E. wind blows right into it. Some rocks border Theodosia Point, but a depth of 4 fathoms will be found at three-quarters of a cable's length, and 10 fathoms at a quarter of a mile to the eastward of it. A small white monastery, dedicated to St. Elias, stands at two-thirds of a mile to the westward of the point, and may be recognized from a long distance.

St. Elias Monastery. 97. Theodosia Point is the western extremity of the deep semicircular bay of Kaffa, formed between that point and Cape Chaüda, which lies 17 miles to the eastward, by the coast receding nearly 8 miles to the northward. It carries the very

Kaffa Bay.

convenient depth of from 10 to 15 fathoms all over it, and 5 fathoms within $1\frac{1}{4}$ miles of its shores, which are safe and clean to approach, with the exception of a small rock which lies in the N.E. part of the bay at about three quarters of a mile from the shore, abreast of the village of Siz Aoul. [See Plan.]

*Rock.**Siz Aoul.*

The town of Kaffa or Theodosia, formerly the largest and most important in the Crimea, stands at the western side of the bay; the shore from thence is low and sandy, but as it trends to the eastward it becomes more elevated, and its sides steep, and of a reddish tint.

Kaffa or Theodosia.

After passing Theodosia Point, and the low south point of the road called by the Russians Dvúkh-yakornoi (Two Anchors), to which a berth should be given of $1\frac{1}{2}$ cables, a vessel with a southerly wind should immediately haul up for the anchorage, as it often precipitates itself with violence from the mountains above the town.

The roadstead abreast of the town is considered very good, being sheltered from all winds, except those from the E. and E.S.E. They send in a heavy swell, which, however, is attended with but little danger, as not a single case of shipwreck has ever been recorded. It is the best commercial port in Southern Russia, and possesses the advantage of having excellent holding ground, and of never being frozen in winter, but since it has been despoiled of its privileges and revenues, it is but rarely entered save by a few vessels laden with the produce of the steppe, which is very fertile.

Road.

The usual anchorage for vessels in pratique is abreast of the eastern portion of the town, at about 4 cables' lengths from the shore, in 5 fathoms water, over stiff mud. The depths from thence decrease gradually to 2 fathoms, at the extremity of the quay, where small vessels are sheltered from the easterly winds by the storehouses.

Pratique Anchorage.

Dvúkh-yakornoi Point lies a little distance to the eastward of the first buildings of the Lazaretto, which encloses some of the walls and several towers which are still standing of the ancient Kaffa of the Genoese.

Dvúkh-yakornoi Point

The Quarantine anchorage is abreast of another projection to the westward of Dvúkh-yakornoi Point, on which stands a long row of storehouses. Vessels anchor in 3 fathoms water at three quarters of a cable's length from the shore; there are 4 fathoms at the distance of 2 cables' lengths.

Quarantine Anchorage.

Cape Chaüda. 98. Cape Chaüda, called Tashekachik by the Tartars and Chiavetta by the Italians, is bordered on its western side by some rocks lying close to the shore. In approaching it from the westward, it may be recognized by a round hill called Mount Diurmen, which appears connected with it, although lying 5 miles to the eastward. A Tartar village, named Karangut, stands near the mount. To the southward of Mount Diurmen the coast projects in that direction, and forms the little point called Diurmen, which bears due east about 5 miles from Cape Chaüda. There is anchorage in a small inlet to the eastward of the point in 4 fathoms, over mud and sand, at about half a mile from the shore, sheltered from the W.S.W. round by the north to east. From thence the coast again recedes to the northward, and then trends to the eastward to Mount Opúk, which bears from Cape Diurmen E. $\frac{1}{4}$ S. 11 miles.

Mount Opúk. Mount Opúk, which rises to a considerable height, may be seen at a great distance, and is sometimes compared to Gibraltar, although it is much lower. Its summit is flat, and covered with rocky projections, which have the appearance of fortifications. The three rocks called Ilchan lie off shore about 2 miles to the W.S.W. of the mount, and when seen from the southward, appear like two vessels and a boat under sail. They are bold close to, and a vessel may anchor near them, in about 9 fathoms water, over a mud bottom, when waiting for a favourable wind to enter the Strait of Kertch. The current here runs strong to the south-westward. Mount Opúk can be rounded very close, and between it and the rocks there is a depth of from 5 to 7 fathoms.

Anchorage. From Mount Opúk the coast again trends in to the northward and eastward 6 miles to Yenicheh Takli Point. A vessel will find anchorage in the bend of the coast to the eastward of the mount in from 5 to 6 fathoms water, and sheltered from the W.S.W. to the E. by N. round by the north. Yenicheh Takli Point, unfortunately, is not easily recognized, for a mile to the southward of it lies a dangerous shoal, carrying a depth of only 9 feet, and not being marked by a beacon, it has occasioned the loss of several coasters when keeping the shore aboard with contrary winds, on entering or leaving the Strait of Kertch.

Another dangerous rocky bank, lying $2\frac{1}{2}$ miles to the south-east of the above, was discovered in H.M.S. Spitfire in May 1855. The least depth found was 24 feet, but probably there is less water; it lies 5 miles S. by W. $\frac{3}{4}$ W. of Cape Takli, and is in the fairway for Kertch Strait in coming from the westward. This danger, named Spitfire Rock, may be cleared passing to the southward of it, by keeping Cape Chaüda open of the Ilchan islet, which lies off Cape Opúk; and passing to the eastward of it by keeping the highest tumulus over Ak-burnú open of Cape Takli.* *Spitfire Rock.*

The variation at Kertch, in May 1855, was found to be $3^{\circ} 45'$ W. In the Russian charts of 1836 it is given as $6^{\circ} 45'$ W.; this amount would seem to have been too great, but observations on this head are much wanted in every part of the Black Sea, and it may be hoped now that this sea is thrown open to the commerce of all nations, it will not be long before we may be enabled to correct our charts on this point. *Variation.*

Those who make observations should not forget the local deviation of the ship, especially in a steamer, and more particularly in an iron steamer, and should always note the direction of the ship's head at the time the azimuth or amplitude may be taken.

* See plan of Kertch Strait, with corrections to July 1855. Scale m. = 0.5 of an inch.

CHAPTER IV.

KERTCH STRAIT AND SEA OF AZOV.

Cape Takli. 99. CAPE TAKLI, which is of moderate height, and forms the S.W. extremity of Kertch Strait, lies nearly 5 miles to the north-eastward of Yenicheh Takli Point. A lighthouse built of white stone, 48 feet in height, stands on the cape, and exhibits a Fixed Light of a Pale colour, at an elevation of 313 feet above the sea, which may be seen in clear weather at the distance of 20 miles. The Cape is bordered by a reef, which commences at Yenicheh Takli point, where it extends only 2 cables' lengths from the coast, but near the Lighthouse it runs out in a S.E. direction for half a mile, and probably more. A depth of 5 fathoms will be found along its edge, but a vessel should give Cape Takli a berth of at least one mile.*

Western shore of Kertch Strait. 100. At about two-thirds of a mile to the northward of the northern extremity of Cape Takli, the coast falls back a little to the westward, and forms a point, abreast of which, at three quarters of a mile from the shore, lies a reef with a depth of only 6 feet on it, and 5 fathoms at its edges. To the northward of it a depth of 4 fathoms will be found at half of a mile from the shore. Another reef, carrying a depth of only 3 feet, lies at half a mile from the shore, at $3\frac{1}{2}$ miles to the N. by W. of Cape Takli, abreast of a cliff, at the back of which is an extensive salt lake, which may be seen from the deck of a vessel over a strip of sand dividing it from the sea. Near the edge of the reef there are 5 fathoms water, and the shore from thence to Kamish (reedy) Point may be approached to 3 cables' lengths, where a depth of 20 feet will be found.

Kamish Point. 101. Kamish Point may be recognized by several hillocks and buildings which precede it, and by a plain to the northward. A few rocks border the point.

From thence the shore is low and sandy, and terminates at 2 miles to the N.N.E. in a low sandy point, which is bold to approach, having from 21 to 18 feet water, at three-quarters of a cable's length from it. To the westward is a lake three-quarters of a mile in length to the southward, which

Lake.

* See plan of Kertch Strait, corrected to July 1855. Scale 1 m.=0'5 of an inch.

carries a depth of 12 feet, and communicates with the sea by a narrow and shallow channel, which is only practicable to small coasting vessels drawing about 5 or 6 feet water. From thence the shore bends in to the westward, and then trends to the N.E. to Cape Paul, forming between them a small bay called Ambélaki, which carries a depth of from 14 to 20 feet water, and affords a pretty good anchorage in from 2 to 3 fathoms at 2 or 3 cables' lengths from the shore. It is, however, exposed to north-easterly winds. It will be well here to observe that Takli Light, which is visible near Cape Paul, is lost sight of when pretty close to the southern point of the bay.

102. Cape Paul is of moderate height, with a strong battery and some buildings on it, and lies 5 miles to the north-eastward of Kamish Point. At a mile to the N.E. is Ak-burnu (white cape), remarkable both for its colour and its numerous hillocks, on one of which stands a white house, which is visible at a long distance. Cape Paul is bold to approach to within a short distance on its southern and S.E. sides, but in a small bend of the coast to the northward lies a bank of rocks which increases in extent, and, in the form of a tongue, runs off for three-quarters of a mile to the E.S.E. of Ak-burnu, having 18 feet water at its edges. A red beacon is placed in 15 feet water S.E. $\frac{1}{2}$ S., a good three-quarters of a mile from Cape Paul, at the extremity of the long spit stretching to the N.W. from Cape Taman on the eastern shore. A white beacon also marks the extremity of the rocky bank off Ak-burnu, with the red beacon bearing N.E. $\frac{1}{2}$ N. $1\frac{1}{4}$ miles, the little hill of Mithridates (forming a marked feature in the town of Kertch which it completely commands) N.W. $\frac{2}{3}$ N., and the Quarantine flag-staff N. by E. $\frac{1}{4}$ E. The channel between the two beacons carries a depth of from 18 to 26 feet and between the red beacon and Cape Paul 18 to 25 feet.

103. From Ak-burnu the coast falls back $2\frac{1}{4}$ miles to the N.W., and forms a circular bay $2\frac{3}{4}$ miles wide, at the bottom of which stands the town of Kertch. The town is modern, and presents a more pleasing aspect than most little Russian towns afford. It is said that it now contains 3,000 inhabitants, but it does not promise to be of much importance until the provinces about the Don enjoy a higher civilisation. There is no produce shipped from Kertch, and since the quarantine has been reduced to four days, the chief part of the vessels,

*Ambélaki Bay.**Cape Paul.**Ak-burnu.**Rocky bank.**Red and white beacons in strait.**Kertch.*

after taking pratique, proceed to load at Berdiansk, Mariupol, and Taganrog. A few vessels await their cargoes here from Rostov, and particularly in the fall of the year, when there is a fear of being caught by the ice in the Sea of Azov.

Anchorage.

Vessels completing their cargoes are obliged to anchor in 15 feet water at 2 miles from the town ; from thence it gradually shoals to the shore where a depth of 12 feet will be found at a short distance off. At a small projection before the town, which divides the head of the bay into two bights, are the remains of an ancient mole, extending out 300 yards to the E.S.E., which is covered with 2 or 3 feet water. The bight to the southward of the mole is bordered by a long sandy beach, and serves as an anchorage as well as that to the northward. Several landing places have been constructed for coasters, and

Ancient Mole.

Sunken rock.

between the first and the mole lies a small sunken rock. The northern bight is partly choked up with mud, which is carried into it by a rivulet. It is, however, preferable to the southern bight, as there are 11 feet water at half a cable's length from the shore, and it shelters from N.E. and E.N.E. winds, which are considered dangerous, especially to vessels anchored at the entrance of the bay. Losses occur annually, especially to coasting craft, and during the dreadful storm, on 2nd December 1849, 27 vessels were lost. The reef off Akburnu breaks the sea with a southerly wind. Owing to the

Ice.

influx of the fresh water from the Sea of Azov, and the ice which the current conveys, the bay freezes for a certain length of time every winter, but not farther than Kamish Point. The fields of ice which float about often drive vessels on the banks of the strait, where they are sometimes wrecked. The Quarantine establishment is marked by a flag-staff at $1\frac{3}{4}$ miles to the eastward of the town. Vessels in quarantine anchor in any convenient depth over a good holding ground, but exposed to S.S.E. and E. winds. There is a depth of 12 feet at 2 cables' lengths from the shore.

Lazzaretto.

Quarantine anchorage.

Kertch occupies the site of the ancient Greek colony of Panticapæum, once the queen city of the Cimmerian Bosphorus, now Kertch Strait. The name Kertch, or more properly Kerch, is a corruption of the name Kherséti, which the Turks gave to the fortress erected here by the Genoese.

The arrivals at Kertch in 1852 were 1,111 coasters and 113 foreign vessels, of which latter 52 entered the Sea of Azov.

104. The town of Yení-kal'eh stands on a point at the narrowest part of the strait, about $5\frac{1}{2}$ miles to the eastward of Kertch, and E.N.E. $\frac{3}{4}$ E. $4\frac{3}{4}$ miles from Ak-burnu. A fortress is erected on the curve of a steep shore, which gives the point a peculiar appearance. A broad sand flat, with only 6 feet on it, which begins at $1\frac{1}{4}$ miles to the westward of the town and terminates at the point, extends out three quarters of a mile to the southward, where there is a depth of 12 feet. A white beacon marks its extremity.

*Yení-kal'eh.**Fortress.**Sand flat.**White beacon.*

105. At three quarters of a mile to the S.E. by E. of Yení-kal'eh Point is the central edge of a bank which lies in the middle of the channel, called Krugloi (the Round) by the Russians, and Rosetta by the Italians. It is $1\frac{3}{4}$ miles in length from E.N.E. to W.S.W., and nearly half a mile broad, and carries a depth of from 7 to 11 feet water, and 12 feet at its edges. Its extremities are marked by two red beacons; one lies a mile to the southward of Yení-kal'eh Point, and the other $1\frac{1}{2}$ miles to the eastward of the same point. The channel which runs N.E. and S.W., and carries a depth of from 13 to 16 feet, is only about $3\frac{1}{2}$ cables broad between the red beacon at the southern extremity of this shoal, and the white beacon that marks the southern edge of the sand flat which extends off from the shore to the westward of Yení-kal'eh Point.

*Krugloi Bank.**Red beacons.**Channel.*

A vessel may approach the fortress of Yení-kal'eh and the sandy shore to the northward of it, which is called by the Russians Opásnaya (Dangerous) to within a third of a mile, where there is a depth of 15 or 16 feet. Vessels from the Sea of Azov generally anchor here and discharge part of their cargoes, to enable them to pass the shallows to the S.W., where is sometimes only a depth of 13 feet water.

*Yení-kal'eh Fort.**Opásnaya beach.**Anchorage.*

106. Cape Fanár lies about $2\frac{3}{4}$ miles to the N.E. of Yení-kal'eh. A hill, rising from the cape to the height of 276 feet above the sea, has a lighthouse erected on it, 66 feet in height from the base to vane, which exhibits a Fixed Light at 342 feet above the same level. It may be seen in clear weather at the distance of 21 miles from N.W. by N. to S.W. by S. by the N.E. Between the cape and Opásnaya beach there is a depth of 8 feet in a little inlet formed by the shore receding to the westward. Beyond the cape the strait widens out, and at 5 miles to the N.N.W. of the lighthouse beyond a sandy beach, is a cape named Julia.

*Cape Fanár.**Fanár Light.**Cape Julia.*

Eastern shore of the strait. 107. Having described the western or Crimean shore of the Strait of Kertch, we will now proceed to the eastern or Taman shore, commencing from the southward at Cape Kishla.

Cape Kishla. Cape Kishla, with its flat summit and steep cliff, lies at the foot of a hill between the mouth of Kuban Lake, called Bogház, and Cape Panaghia. At $5\frac{1}{2}$ miles W. $\frac{1}{4}$ S. from Bogház commences the south-eastern extremity of a long and narrow reef, named Kishla, which curves for $2\frac{1}{2}$ miles to the N.W. towards

Kishla Reef. Cape Kishla, from which its northern extremity is distant a good half mile. This reef is the more dangerous as the Cape is not easily recognized, having nothing on it to distinguish it from the rest of the coast, which has the same bold appearance.

Bogház. Its position must therefore be determined by the bearings of Bogház, which may be easily known by its sands and houses, and by Cape Panaghia, which is marked by its projection and by its group of outlying rocks. From the eastern end of the reef Bogház bears E. $\frac{1}{4}$ N. $5\frac{1}{2}$ miles, Cape Panaghia N.W. $\frac{2}{3}$ W. $6\frac{3}{4}$ miles, and the centre of Cape Kishla N.W. by N. 2 miles. From the projecting angle of the centre of the reef Bogház bears E. $\frac{1}{3}$ N. $6\frac{1}{4}$ miles, Cape Panaghia N.W. $\frac{1}{3}$ W. 6 miles, and the centre of Cape Kishla N. $\frac{1}{3}$ W. $1\frac{1}{2}$ miles. It carries a depth of from 8 to 13 feet, and 5 fathoms at its edges, and there is a depth of from 35 to 40 feet between it and the rocks which front Cape Kishla, and which extend 3 miles to the eastward of it, and half a mile from the shore. There is also said to be a depth of 20 feet between its northern end and the cape.

Highflyer Rock. At 3 miles to the westward of the centre of the Kishla Reef several rocks were discovered, in April 1855, by the vessels after which the rocks are now named.

The Highflyer Rock, with only 15 feet water, lies with Cape Kishla, bearing E.N.E. $\frac{1}{2}$ N. 3 miles, and Cape Panaghia N.N.W. 4 miles. A patch of 16 feet lies about one mile farther to the eastward; and another, with 24 feet, named the

Viper Rock. Viper Rock, the same distance to the S.E.; but it is probable that all the ground between the Highflyer Rock and Cape Kishla is foul; vessels, therefore, ought to pass outside, by keeping Cape Taman open to the westward of all the islets lying off Cape Panaghia.

Cape Panaghia. 108. Cape Panaghia lies $4\frac{3}{4}$ miles N.W. by W. $\frac{1}{2}$ W. from Cape Kishla, and a depth of 26 feet is marked on the Russian

chart between them, at a third of a mile from the shore ; but the mariner will be on his guard, since, as remarked above, this space appears to be foul ground. In passing the Cape give it a berth of two miles, to avoid the foul ground off the group of islets which front it, and which make the cape easily to be recognized.

From the islets a ridge of submerged pinnacles of rocks resembling the islets, extends W. by N. ; the outermost at $1\frac{1}{4}$ miles, with only 10 feet over it, is called the Fulton Rock, after the French steamer of that name. All these dangers will be cleared by keeping Yení-kal'eh lighthouse open of Cape Taman.

Fulton Rock.

Between the Panaghia rocks and Cape Taman, which lies $3\frac{1}{2}$ miles to the N.N.W., the coast should be given a berth of three quarters of a mile, to avoid the rocky bank which borders the shore. Some of the rocks forming this bank are awash, others have 5 to 8 feet over them, and between those that lie near Cape Taman there is a depth of 18 to 20 feet.

Panaghia Rocks.

Cape Taman.

109. A sand-bank $6\frac{3}{4}$ miles long and $1\frac{1}{2}$ miles broad stretches out to the N.W. from Cape Taman, in the direction of Cape Paul, and nearly bars the strait. A long strip of narrow sand rises from this bank, called the Yújnaya (South) Spit, and extends 4 miles from Cape Taman in the direction of the bank. Near the N.W. extremity of the bank there is a narrow sandy islet, on which are seen some fishing huts, $1\frac{1}{4}$ miles in length, and taking the same direction as the Spit. The bank carries a depth of from 3 to 8 feet, and 12 to 15 at its edges. A red beacon already noticed in (Art. 102) marks its N.W. extremity. Good anchorage will be found to the southward of the bank, when N.E. winds or the great strength of the current prevent vessels from turning to windward. Small vessels may anchor very near the bank without being intimidated by the yellow streaks of water, which, during rough weather, indicate the passage of the strong current between the islet and Yújnaya Spit. Ships of the line and frigates anchor to the westward of Cape Taman in from 35 to 40 feet water.

Sand-bank.

Yújnaya Spit.

Fishing huts.

Red beacon.

Anchorage in N.E. winds.

110. From Cape Taman the coast bends round to the eastward to the town of Taman, which lies about 5 miles from the cape. The coast between them is bordered by rocks, but there is a depth of 15 feet at a quarter of a mile from the shore.

Taman.

*Fanagoria
Fort.*

At a mile to the eastward of the town stands Fanagoria Fort, and from thence the coast trends a mile to the north-eastward, where a tongue of sand projects three quarters of a mile to the northward, called the Vezimsk Spit, which forms the S.W. point of Taman Lake. The lake is 10 miles long and 4 miles broad, and carries a depth of from 12 to 16 feet, over mud and shells.

Vezimsk Spit.

Taman Lake.

Cheska Bank.

111. A tongue of sand, called the Cheska Bank, stretches out upwards of 8 miles, in a S.W. direction, from a point 2 miles to the southward of Cape Kamenoi (rocky cape), which is the N.W. extremity of the coast of Taman. Its western edge is even and straight, but on its eastern side there are many indentures, which vary its breadth from half a cable to half a mile. A flat in the shape of the human foot, which carries a depth of from 12 to 4 feet, surrounds it, and its southern end projects to the N.W. towards Kertch, where a red buoy is placed. The channel to Taman Lake lies between this bank and the Yújnaya Spit. The deepest part is about a mile wide, and a depth of from 15 to 18 feet will be carried through, by keeping Ak-burnu bearing S.E. a little southerly.

Flat.

Red buoy.

*Channel to
Taman Lake.*

*Running
through the
strait from the
southward.*

112. The description of the shores of this strait would be incomplete without directions necessary to enable the seaman to avoid the numerous banks which obstruct the passage through it, and render it dangerous.

A vessel on entering the strait from the southward with a leading wind, should, when in mid-channel between Cape Takli and Cape Panaghia, steer about N. $\frac{3}{4}$ W. for Cape Paul, when the depths will gradually decrease from 55 to 23 feet; in the latter depth she will be about half a mile to the southward of the cape, and three quarters of a mile to the westward of the red beacon at the extremity of the Taman bank. The church steeple of Yení-kal'eh must now be steered for on an E.N.E. bearing, leaving the red beacon to starboard, and the white beacon at the extremity of the rocky bank off Ak-burnu to port.

Steering thus, the depths will decrease from 26 to 16 feet, and the red buoy will be seen on the south western extremity of the Cheska flat, and the white beacon at the south extreme of the flat to the westward of Yení-kal'eh. When the summit of the hill of Mithridates behind Kertch bears

W.N.W. $\frac{1}{2}$ W., steer E. by S. until Yení-kal'eh church bears N.N.E. $\frac{1}{2}$ E., when haul immediately to the N.E., which will lead through the channel between the Yení-kal'eh and Krugloi banks, leaving the white beacon on the former to port, and the red beacon on the latter to starboard. The depths will increase towards the northern part of the strait, but be careful to avoid the shore between the Ospásnaya beach and Cape Fanar, as there is only a depth of 12 feet at half a mile from it.¹

*Channel west of
Krugloi Bank.*

The channel between the Krugloi and Cheska banks is as deep as the former, but it is little frequented. A vessel in proceeding through it, and starting from the former position where Yení-kal'eh church bore N.N.E. $\frac{1}{2}$ E., should steer E.S.E. $\frac{1}{2}$ E., hauling gradually to the eastward till the church bears N.W. $\frac{1}{4}$ N. or Cape Fanar N. by E. $\frac{1}{2}$ E., when a N.E. course will lead through; bearing in mind that the south-eastern edges of the Krugloi are not marked.

*Channel east of
Krugloi Bank.*

113. THE SEA OF AZOV lies between the parallels of 45° 17' and 47° 17' N., and the meridians of 34° 51' and 39° 19' E. Its length, on the parallel of 46° is 127 miles, and its breadth on the meridian of 37° 19' is 97 miles. From Kertch Strait to the Don is 160 miles.* Its extreme length from the Tonka beach to the Perevólka mouth of the Don is 197 miles.

*General Obser-
vations.*

The northern coast of this sea is from 90 to 130 feet in height, and of a reddish appearance. On its surface, which is flat, a few small hillocks may be seen. Extensive spits of sand, bordered by banks, are formed around all the promontories, and being subject to the influence of the currents of the Don, trend to the westward.

Its eastern coast, from Temriuk Bay to the Don, inhabited by the Chémoi-morskoi or Black Sea Cossacks, is low, and divided by lagoons. The western coast is formed by a narrow and long peninsula, named Tonka (narrow) or Strelka (arrow), that separates this sea from the Sivash or Putrid Sea, which receives several of the Krimean rivers, and where salt is made. A part of the Krimea and the island of Taman form the southern shore, on which are some hills, which serve as marks for directing a vessel's course.

114. The greatest depth of this sea is about 44 feet between the Strait of Kertch and Bielo-sarai (Whitehouse) Spit on

Its depth.

* See chart of Black Sea, Sheet 5. Sea of Azov. Scale d.=10° 0 inches.

its northern shore, but it diminishes greatly in the Gulf of Azov, which is much narrowed by its banks, having only 26 feet at its entrance, and 8 to 10 feet in the roadstead of Taganrog. By observations, it is said that from 1706 to the year 1808, the depth of the gulf has diminished three feet; from the latter date to 1833, it has again diminished three feet; so that it has lost six feet depth in 127 years. The sand banks have also increased in extent, and others have been formed which render its navigation more and more difficult.

Sand banks.

The bottom is of mud mixed with shells, which are generally black, but of a reddish colour along the eastern shore. The water is of a dull yellow colour, but the quantity poured into it from the river Don makes it always fit for use at the distance of 20 miles to the westward of Taganrog.

Its rivers.

115. The rivers which empty themselves into this sea, are the Sambek, the Mius, the Kalmius, the Berda, the Kacha Berdyanka, and the Obitochna, on the northern shore. On the western shore, the rivers Salghir, Kara Su, Bulganak, the two Yandols, and the Subachi, flow from the Crimea into the Sivash, which in its turn empties itself by the Ghenichesk Strait. The peninsula of Kertch does not contribute even a rivulet. Along the eastern coast beyond the lower and upper Temriuk Lakes, are the rivers Kuban, Talgi, the Kirpilí, which flows into the Okhtar Liman, the Bei-su into that of Beislich-koí, the Chál-báshi, Gei, and the Kagalnik, which have their issue near the Don.

Currents.

There is little current in this sea (except in Kertch Strait), for even with a strong N.E. wind, it does not run more than a mile an hour, and if a southerly wind should follow after a calm, it flows for a short time in a contrary direction.

Its general course from the river Don is to the westward, towards the Bielo-sarai Spit, where it divides; the larger stream taking a southerly direction for Kertch Strait; the other following the northern shore meets between the Obitochna and the Beruch Spits, the water flowing through Ghenichesk Strait from the Sivash. Their junction determines their course to the southward, along the Tonka or western shore towards the strait of Kertch. The navigation of this sea is rendered impracticable by ice, except between the end of April and beginning of November.

Ice.

116. Cape Kamenoi (rocky) which forms the eastern point of the entrance to Kertch Strait, is of moderate height, steep, and of a reddish colour. It is bordered by rocks, which will be avoided by keeping at half a mile from the shore, where there is from 18 to 20 feet water. *Cape Kamenoi.*

117. Pekli Point lies 4 miles to the E.S.E. of Cape Kamenoi, and from thence the coast bends to the southward, and trends for 20 miles to the entrance of the upper Temriuk Lake, which lies at the bottom of Temriuk Bay. The shore from Pekli point is of less height, and intersected by several little ravines. At $10\frac{1}{2}$ miles to the E.S.E. of the point, a large opening will be seen choked up with sand, called Aktanizovka, the eastern side of which is formed by a narrow portion of land 5 miles in length, of little height, and which terminates to the eastward in another collection of sand, at the extremity of which lies the entrance to the upper Temriuk Lake. *Pekli Point.*
Temriuk Bay.
Aktanizovka.

The point, at the extremity of which stands the village of Temriuk, divides into two great salt lakes the waters which flow from the Kuban into the sea of Azov. The western lake is called the Upper Temriuk, and the eastern, the Lower Temriuk, which are joined at the foot of the point by a narrow channel, through which the waters of the lower lake flow with great rapidity into the upper lake. They are very shallow, and only navigable by flat-bottom fishing boats and the boats of vessels that arrive in the month of May to load their cargoes of fish, for which these lakes are celebrated. They anchor in the bay, with Temriuk church, which is conspicuous, and may be seen at a good distance from the shore, bearing about S. by W. at $1\frac{1}{2}$ miles from the entrance, in 16 or 17 feet water, over mud and sand. No cases of shipwreck have occurred in this bay; and if a vessel should be obliged to put to sea for safety with a northerly wind, she will be assisted by the current which runs out of the lake. *Temriuk.*
Upper and Lower Lake.
Anchorage.

118. To the eastward of Temriuk, the coast is low and sandy, and trends to the northward and eastward for 30 miles to Achuev, where vessels may anchor abreast of the mouth of the northern branch of the river Kuban, named Chernoprotsk, at 2 miles from the shore, in a depth of 4 fathoms; and also abreast of Sladkii (Sweet) rivulet, 7 miles to the westward. A depth of 18 to 10 feet will also be found along the coast. *Achuev.*
Anchorage.
Sladkii Rivulet.

Okhtar Liman. for 22 miles to the northward, as far as the Okhtar Liman, to the eastward of which the land becomes a little more elevated, and is marked by two hills.

Kamisheva Point.

119. From Okhtar Liman to Kamisheva Point, which bears N. by W. 22 miles, the coast falls back to the eastward and forms a large bay, 12 miles deep, but the want of depth of water and the banks in it deter vessels from approaching its shores. A depth of 16 feet will, however, be found at 6 or 7 miles from the coast. A projection of sand extends out $3\frac{1}{2}$ miles to the S.E. from Kamisheva point. To the N.W. by W. of the mouth of the Okhtar Liman, and along an extent of 27 miles in length, and one or two in breadth, a marked difference in the depths will be found, and the bottom will begin to rise at about 16 miles from the coast, where there are only 22 feet water. From thence commences a flat, carrying a depth of from $3\frac{1}{2}$ to 3 fathoms, which terminates to the N.W. in an oblong bank, called the Jelezin, of about $1\frac{1}{2}$ miles in length in a northerly direction, with only 17 feet water on it. The body of the bank lies N.E. $\frac{3}{4}$ N. 56 miles from the Strait of Kertch, and extends 30 miles off the eastern shore abreast Okhtarsk.

Dolga Point.

120. From Kamisheva Point the coast becomes a little elevated, and trends to the N.N.W. for 15 miles to Dolga (Long) Point ; at about $2\frac{1}{2}$ miles to the southward is a hill or cliff, named Obriv.

Elenia Spit.

Two banks project off the point ; the first, called the Elenia Spit, extends to the W. by S. for 15 miles, and is about 2 miles wide. It carries a depth of 8 feet at 9 miles from the shore, and only 16 feet at 16 miles. A flat, which is the continuation of this spit, extends 9 miles to the W.S.W. from its extremity, with from $3\frac{1}{2}$ to 4 fathoms on it. The second bank runs off in a N.W. by N. direction for nearly 15 miles from Dolga Point,

Dolga Spit.

and is the extension of a sandy projection called the Dolga Spit, running off 9 miles to the N.W. from the point. Near

Black Beacon.

its extremity is placed a black beacon, in 22 feet water, with Berdiansk Lighthouse bearing N.W. by W. $\frac{2}{3}$ W. $9\frac{1}{2}$ miles. Along the edges of the bank there are 18 feet water ; but that depth decreases considerably at $1\frac{3}{4}$ miles to the S.S.E. of the beacon, where 2 feet only will be found on a small patch called the Dolga Knoll. Fishing huts are erected on Dolga Point as well as on all the sandy points of this sea. Being built on posts, in order to preserve them from being carried away by

Dolga Knoll.
Fishing huts.

inundations, they have, when seen from a distance, a very extraordinary appearance, as if floating on the water. It may here be proper to observe, that all the beacons in the Gulf of Azov must be left to starboard when steering for Taganrog. *Beacons.*

121. The GULF OF AZOV is divided into three basins, formed by the different banks which border its coasts. The first is that of Mariupol, bounded by the Dolga and Bielo-sarai Spits to the westward, and to the eastward by the Sazadnits and Krivaia banks. The second is the Sazadnits basin, which is formed between the latter banks and the Chimbur and Petrushin banks to the eastward. The eastern basin is that of Taganrog, which lies at the head of the gulf between the latter and the Delta of the Don. It is necessary to remark that the bed of the channel leading from one basin to the other is deeper than elsewhere. The depth at the entrance of the first basin is 33 feet, with 30 feet on each side over a muddy bottom; the second has 24 feet, with 21 on each side, and the entrance to Taganrog basin, 17 feet.

From Dolga Point the coast turns to the eastward for 20 miles to the Gheisk or Yeisk Liman, which is of an oblong form, of about 13 miles in length from east to west, and 7 in breadth from north to south. The entrance is about $2\frac{1}{4}$ miles wide, and is formed between Glafirovka Point and the Gheisk Spit, which extends 4 miles in a N.E. by E. direction from the western point of the entrance, and protects the Liman from northerly winds. A tongue of sand, called the Naiben Spit, runs off in a southerly direction for 2 miles from Glafirovka Point, and then bends the same distance to the eastward. This Liman would form an excellent anchorage, but its maximum depth is only 5 feet water, with from 13 to 7 feet at its entrance. The town of Old Gheisk stands at the head of the Liman, at $1\frac{1}{2}$ miles to the northward of the mouth of the river Ghei, and is very populous. A commercial town, named New Gheisk, or Yeisk, was founded by Prince Woronzoff in the year 1848, on the western sandy point of the entrance, near the deeper water, and has rapidly increased. A road of much importance leads south from Gheisk to Ekaterinodar, on the Kuban, by which communication is kept up with the army of the Caucasus. *Gheisk Liman.*
Gheisk Spit.
Naiben Spit.
Old Gheisk.
Ghei River.

122. From Glafirovka Point, the coast runs 6 miles to the northward, and then bends 3 miles to the N.E. to a low sandy

Sazadnits Spit. point called the Sazadnits Spit. An extensive bank of sand extends in a W.N.W. direction from the spit, carrying a depth of 8 to 10 feet, and 12 feet at its edges, with several patches rising from it, called the *Morskii Ostrová* (Marine Isles), on which are several fisheries. A black beacon buoy is moored in $17\frac{1}{2}$ feet at its northern extremity.

Sand Patches. 123. From Sazadnits Spit the coast curves to the E. by N. for $17\frac{1}{2}$ miles to the Chimbur Spit, which lies to the N.E. of two hillocks and the town of Margaritovka. From this spit a bank projects $7\frac{1}{2}$ miles in a northerly direction, carrying a depth of $1\frac{1}{4}$ to $1\frac{1}{2}$ fathoms, and 2 fathoms at its edges. Its extremity is also marked by a black beacon buoy, placed in $15\frac{1}{2}$ feet water, with the cathedral church of Taganrog bearing N.E. $\frac{1}{3}$ E., the Zolotaya or Golden Bank light vessel west a little northerly, 7 miles, and the church of Margaritovka S. by E. $\frac{3}{4}$ E.

Black Beacon Buoy. From the Chimbur Spit to the Ochákov Spit, which is the next point of sand, at $9\frac{1}{2}$ miles to the E.N.E., the depth is only 8 feet at 2 miles from the shore, and at 8 miles to the eastward of this spit is the entrance to the southern branch of the river Don, near the village of Kagal.

Ochákov Spit. 124. The river Don, ancient Tanais, falls into the sea at the head of the Gulf of Azov by several mouths, from the village of Kagal as far as Siniavka, which is 12 miles to the northward. It overflows its banks in May, but returns to within its usual limits at the end of June or beginning of July.

This noble river, which flows from lake Ivan, in the government of Tula, runs south-eastward to within 40 miles of the Volga, when it turns abruptly to the south-west for 240 miles and falls into the head of the Gulf of Azov, its whole course being about 900 miles; it has much more active trade than any other river of Southern Russia.

The principal mouth is that to the southward, and bears the name of the Don. The second, at 2 miles to the northward, is called the Kalancha; the third, nearly 4 miles to the northward of the latter, the Perevólka; the fourth, at $1\frac{1}{2}$ miles to the northward, the Kuturma, and the fifth, the Mertvoi Donets (dead or still), near Siniavka. At present, the only branches navigable are the Kalancha and the Perevólka; the latter carries a depth of 12 feet at its mouth, and 5 to 8 feet in the channel, which its waters have formed, leading from it to the westward. In a similar channel leading from the Kalancha,

*The Don,
Kalancha,
Perevólka,
Kuturma, and
Donets Mouths.*

there are 9 feet water at the mouth and 6 to 8 feet at $2\frac{1}{2}$ miles from the shore. The Kuturma branch, into which vessels pass from the Kalancha, is obstructed by sandbanks, which have only a depth of 6 feet on them. Above these banks, on nearing Rostov, the Don becomes deep, and continues navigable for some hundred miles.

The ancient town of Azov, reduced at the present day to a *Azov.* small place, stands on the southern bank of the river Don, at 6 miles from the sea. The town of Rostov, which lies at *Rostov.* $22\frac{1}{2}$ miles from the sea, contains about 10,000 persons, and is already an important place of trade, and from its advantageous position on the Don, which gives it access to some of the most productive portions of Central Russia, the exports are likely to increase. Besides the linseed, wheat, tallow, wool, rye flour, and iron which are exported, large quantities of munitions of war, such as shot, shell, cables, anchors, &c., from Lugan, about 100 miles above Rostov, are yearly sent to the Crimea and Circassian Coast. Vessels of only 5 feet draught can proceed up to it.

125. From the Mertvoi Donets mouth of the Don, the coast trends to the westward for $9\frac{1}{2}$ miles to Armenia Point, and from *Armenia Point.* thence it recedes to the N.W., and forms the Bay of Taganrog, *Taganrog Bay.* $2\frac{1}{2}$ miles deep, in which there are only from 2 to 6 feet water, and into which the river Sambek runs. The town of Taganrog *Taganrog.* stands on its southern point, which bears S.W. $\frac{1}{2}$ W., nearly 5 miles from Armenia Point. From Taganrog itself wheat and tallow only are exported, but it is one of the three privileged ports for the importation of foreign goods, and is also the great entrepôt for the commerce of the rivers Don and Volga. On account of the shallowness of the Sea of Azov, much of the produce is shipped in coasters to Kertch, Kaffa, and Odessa. The shipments are principally made to England and the Mediterranean ports. The trade between Odessa and the other ports in the Black Sea and Sea of Azov is very limited, and the coasters that go beyond Kertch are principally engaged by the government in carrying military stores, coals, and flour. Anthracite coal is obtained at a short distance from Novo Cherkask, and at Lugan, and is sent down the Don for the use of the Russian steamers in the Sea of Azov. At the extremity of Taganrog point are the remains of a small har- *Harbour.* bour, nearly 3 cables in length, and $1\frac{1}{4}$ cables in breadth, con-

structed by Peter the Great, in which there are not more than 3 feet water ; but there is a good stone pier, resting on piles, to the eastward of the harbour, of which it forms one of the sides. Lighters and even vessels of a small draught of water take in and discharge their cargoes alongside the pier, which is connected with the town by a good macadamized road. The water which runs from the river Sambek into Taganrog Bay increases the depth here to 8 feet at high water. At a mile to the south-eastward of Taganrog Point lies an islet, composed of sand and pebbles, called Cherepakha.

*Cherepakha
Island.*

Taganrog has now about 17,000 inhabitants, chiefly Greeks, a gymnasium, ten churches, three of which are of stone, large and numerous warehouses, and many very handsome private dwellings. The climate is temperate, and remarkably healthy ; the surrounding country is fertile, and produces excellent fruits and culinary vegetables ; wheat sown in unmanured land yields from twenty to thirty fold. The vine and the mulberry flourish, but the country is destitute of wood.

*Petrushin
Point and Bank.*

126. The coast from Taganrog Point again recedes to the N.W., and forms a small bay, the southern extremity of which is Petrushin Point, which lies $3\frac{1}{2}$ miles to the W.S.W. $\frac{1}{2}$ W. A bank, carrying the depths of 6, 10, and 12 feet, extends $7\frac{1}{2}$ miles to the southward of this point, and on its extremity, in 14 feet over a muddy bottom, is placed a white beacon buoy, with the following bearings, Taganrog Point N.N.E. $\frac{3}{4}$ E. 8 miles, and the Black Beacon Buoy at the extremity of the Chimbur Bank W. $\frac{1}{2}$ S.

*White Beacon
Buoy.*

*Taganrog
Roadstead.*

127. The roadstead of Taganrog is about 4 miles wide and $4\frac{1}{2}$ broad between the Petrushin and Chimbur Banks. The greatest depth is 16 to 19 feet.

*Present depths
at the head of
gulf.*

The greatest depths at the head of the gulf from the mouth of the Perevoloka to the southern extremity of the Petrushin Bank are 10 to 16 feet, but they are only approximate, as it is impossible to give the true depths, on account of the land winds, which reduce them considerably, and in some places there is often no water at all.

The following are the depths on the Russian charts of 1836 :—From Taganrog point to $8\frac{1}{2}$ miles to the eastward, as far as the channel leading to the Perevoloka mouth 8, $9\frac{1}{2}$, 8, and 4 feet ; from Taganrog point to Cherepakha island 7, 8, and 2 feet ; S. by E. of this island to $1\frac{1}{2}$ miles from

Ochákov spit 10, 11, 10, and 8 feet; from Cherepakha island to $2\frac{1}{2}$ miles of Chimbur spit $9\frac{1}{2}$, 10, 11, 12, 14, 16, 14, 10, and 8 feet.

The above are only average depths, especially as south or west winds increase the depth, and north and east winds diminish it to 2 or 3 feet, so that persons often walk on dry land from Cherepakha island to Taganrog, and sometimes the bay of Taganrog is nearly dry. Severe regulations exist respecting throwing overboard the stones forming vessels' ballast, which are required to be landed; but this regulation is seldom attended to, as the distance is great, and the roadstead is thereby severely injured.

128. From Petrushin Point the coast trends about W. $\frac{1}{2}$ S. *Zolotaya, or Golden Point.*
 $9\frac{1}{2}$ miles to Zolotaya or Golden Point, from which the extremity of Beglich Spit bears S.W. by W. $\frac{1}{2}$ W. 3 miles. A bank, *Zolotaya Bank.* which takes its name from the point, and which is the continuation of the Petrushin, extends $3\frac{1}{4}$ miles to the southward of the spit. It has 12 feet on its edges at 3 miles to the southward, and at 4 miles to the S.E. of the spit, and the same depth abreast of Zolotaya Point, at $2\frac{1}{2}$ miles from the shore, where the bank recedes to the northward. A light-*Light-vessel.* vessel is moored in 14 feet water at $4\frac{1}{4}$ miles to the southward of Beglich Spit, which bears a Fixed Light at 34 feet above the sea, but she is removed during the winter to Taganrog. The light may be seen in clear weather at the distance of 7 miles from E. $\frac{1}{2}$ N. to W.N.W. $\frac{1}{2}$ W. by the south. The following bearings show her position, Fursova village N.N.E., Chimbur beacon east 7 miles, and Sazadnits beacon W.S.W. $\frac{3}{4}$ W. 17 miles. The depths between the southern extremity of the Zolotaya Bank and the Chimbur Bank are from 16 to 18 feet at about midway between the two shores.

129. Nordveka Point bears nearly due west 15 miles from *Nordveka Point.* the extremity of the Beglich Spit. A long sandy projection extends 4 miles in a S.W. direction from the point, and terminates in a narrow spit, called the Krívaia (Crooked) Spit, *Krívaia Spit.* which can be approached to within half a mile on its eastern side, where there is a depth of 12 feet, but it throws out a bank to the S.W., at the extremity of which there is only the *Bank.* same depth at $5\frac{1}{2}$ miles from the coast. A light-vessel is *Light-vessel.* moored in 14 feet water off this bank, which carries 2 vertical

Fixed Lights at 22 and 34 feet above the sea, with the following bearings :—Nordveka Point N.E. $\frac{1}{3}$ E., Sazadnits beacon S.E. by S. 6 miles, and the Zolotaya Bank light-vessel E. $\frac{1}{4}$ S. 20 miles. The lights may be seen, in clear weather, at about 6 or 7 miles from the E.N.E. $\frac{1}{3}$ E. to W. $\frac{1}{3}$ N. by the south; this vessel is also removed to Taganrog during the winter.

Mariupol. 130. From Nordveka Point the coast runs to the westward for 26 miles to the town of Mariupol, which stands on the right bank of the river Kalmius, where it falls into the sea. Wheat is exported from this place, but a less quantity than from Taganrog or Berdiansk. Vessels anchor at about 2 miles to the southward of the river in 15 and 16 feet water, over muddy bottom and a good holding ground, but the roadstead is open from the S.W. round by the south, to east. Nearer the shore there is a depth of 14 feet over a sandy bottom. The boats which load and discharge the vessels in the roads

Kalmius River. are kept in the Kalmius, which might be made deeper if measures were taken for dredging the bar, which obstructs its mouth, on which there is only a depth of 3 or 4 feet. To

Bar.

Lyapina Sands. the eastward are the sands called the Lyapina, which form a beach and several islets.

“Mariupol is a large dirty village, and its port, which has only a custom-house of exit, is nothing but a small roadstead, of little depth, in which vessels are sheltered from none but westerly winds. Its export trade is considerable notwithstanding, amounting to the annual value of 200,000*l*. It is destined to lose much of its commercial importance since the foundation of the new and more advantageously situated port of Berdiansk, to which the greater part of the produce of the surrounding country already takes its way.”*

Bielo-sarai Spit. 131. From Mariupol the coast is bold and trends to the S.W. for 9 $\frac{1}{2}$ miles, when it becomes low and sandy, and projects another spit, called the Bielo-sarai (White House), nearly 7 miles to the S.W., bending to the westward, and similar in form to the Krivaia. The fishing huts on this spit are very numerous, and a lighthouse has been erected, 72 feet in height, at 2,400 yards from its extremity, which exhibits

Lighthouse.

* Extracts from Travels in the Steppes of the Caspian Sea, the Crimea, the Caucasus, &c., by Xavier Hommaire de Hell, 1838.

a Fixed Light at the elevation of 81 feet above the sea, and which may be seen in clear weather at the distance of 10 miles. From Mariupol a depth of 14 feet will be found along the coast to the S.W., at a mile from the shore, and the same depth at half a mile from the eastern shore of the spit, but the water shoals to the S.W. and W. of the lighthouse, and that depth will only be found at 2 miles from the spit. To the N.W. of the lighthouse, where the shore is steep and bordered by cliffs, there is 16 feet at a mile from the shore. At 5 miles to the northward of the lighthouse a ravine may be recognized, in which stands the village of Alti; from thence the coast trends 18 miles to the W.S.W., to where the river Berda empties itself into the sea. On the eastern bank of the river stands the fortress of Petrovskoi.

Petrovskoi Fort.

132. The mouth of the Berda is barred by a bank, which extends 11 miles to the south-westward, and forms a long tongue of sand, called the Berdiansk Spit. A lighthouse 81 feet in height stands 600 yards E.N.E. $\frac{1}{4}$ E. from its extremity, which exhibits a Revolving Light every minute, at 85 feet above the sea. It may be seen in clear weather at 10 miles. There is a depth of 16 feet at half a mile to the southward of the lighthouse, but in advancing to the northward the water shoals to the westward of the spit, and that depth will only be found at a greater distance from it. The town of Berdiansk stands on the western part of the sandy tongue at 7 miles to the N. by E. $\frac{1}{4}$ E. of the lighthouse and at a short distance from the bold table land which backs it. The port is open earlier and later in the season than that of Taganrog, and draws its supplies from the flourishing German colonies on the Moloshna in its vicinity, which never send their produce to Taganrog. The river Kacha Berdyanka flows into the sea at 4 miles to the westward of the town.

Berda river.

Berdiansk Spit.

Revolving Light.

Berdiansk.

Kacha Berdyanka River.

The usual anchorage for small vessels is at about a quarter of a mile from the landing place, in from 12 to 14 feet water, but the coast to the westward scarcely affords any protection from westerly and N.W. winds. There is, however, a little port formed on the western side of the sandy tongue, by a spit projecting from it to the northward, within 4 miles of the town, well sheltered, and where the coasters resort for winter quarters. It carries a depth of 7 and 8 feet, but it is much

Anchorage.

Port.

feared that the shallows, which extend $1\frac{1}{2}$ miles to the northward from the spit, and which at present only have from 2 to 5 feet water on them, will soon close up the port and form a salt lake, like the others near it.

Salt lakes.

133. From Berdiansk the coast is bold and cliffy for 19 miles to the W. by S., where begins another sandy projection which extends in a S.W. direction for 15 miles; its extremity is called the Obitochna Spit. A bank extends nearly 6 miles to the south-eastward from the spit, carrying a depth of only 6 to 9 feet and 12 at its edges. There are also shoal patches of 15 and 18 feet at 12 miles to the E.S.E. and E. by N. of the spit, with $3\frac{1}{2}$ to 5 fathoms between them. The whole have been called the Obitochna Banks. The river Obitochna flows through a ravine into the bay to the northward of the spit, which appears to afford better anchorage than that of Berdiansk. A depth of $3\frac{1}{2}$ fathoms will be found at 5 miles to the S.W. of the river.

Obitochna Spit.

Banks.

River.

Anchorage.

134. From the mouth of the river Obitochna, the coast trends to the W. and S.W. for 40 miles, to Kiril Point, on which stand some houses and windmills. The point is preceded by a sandy shore to the eastward, and also the Molosh Lake, into which the little river Moloshnia flows.

Kiril Point.

Molosh Lake.

Moloshnia

River.

Beruch Peninsula.

The peninsula of Beruch extends from Kiril Point in a S.W. by S. direction for 12 miles, preserving the breadth of about a quarter of a mile; it then increases in breadth, and forms the Fedotova Bank, which bends to the S.W. for 12 miles to Beruch Spit, and terminates to the westward at Stagshorn Point, where it is $3\frac{1}{2}$ miles wide. A small piece of tableland, which appears to have been detached from the coast, intercepts the peninsula at 4 miles from Kiril Point. A depth of 18 feet will be found along the eastern side of the peninsula at three quarters of a mile from the shore, but there is a less depth at that distance from its western extremity. The current which flows into this sea from the Sivash by the Ghenichesk Strait, runs to the eastward between the Beruch and Obitochna Spits. (Art. 115).

Spit.

Stagshorn Point.

Current.

Ghenichi Strait.

135. The entrance to the Strait of Ghenichi lies N.W. $\frac{3}{4}$ W. 9 miles from Beruch Spit, and is formed between the last bold tableland which borders the northern shore of this sea and the northern extremity of the Tonka. It is about 130 yards broad,

and deepened to 18 feet by the current to which it gives a passage, but there is only a depth of 4 feet at its entrance. The village stands on its northern shore. There is a very good roadstead between the strait and the spit, in from 18 to 21 feet water over a muddy bottom, at about midway between the two shores, and open only to the S.S.E.

*Depth.**Village.**Anchorage.*

136. The Ukliuk Liman lies between the Beruch peninsula and the tableland which terminates at Ghenichesk, and is about 26 miles in length to the N.E. The depths in this Liman are not known; on its western shore is the Lake of Atmanai.

*Ukliuk**Liman.**Atmanai Lake.*

137. The Sivash (or Putrid Sea) is divided into two irregular gulfs or branches, one of which runs to the westward to the isthmus of Perekop, and the other extends to the S.E. towards Kaffa Bay, and receives the waters of several rivulets from the Krimea. The whole of this part appears at present to be utterly impracticable, even for boats.

Sivash.

The Tonka (Narrow) or Strelka (Arrow) of Arabat is the western boundary of the sea of Azov, and separates it from the Sivash. It is very low and narrow, but 60 miles in length, slightly curving to the S.S.E. from Ghenichesk to Arabat Fort. The shore on its eastern side is higher than that on the western side, from the quantity of sand that has been washed up by the sea, and almost of an even line; on the other side, however, it is very uneven, and formed of vegetable earth. Its breadth is irregular, the narrowest parts being only half a mile across; a post road runs along it. At 22 miles to the N.N.W. of Arabat, a bank has formed at 4 miles from the shore, carrying a depth of only 9 feet, but between it and Ghenichesk Strait, a depth of 18 feet will be found at a mile from the coast, over a bottom of sand and shells.

*The Tonka.**Bank.*

138. The ancient fortress of Arabat stands near the southern extremity of the Tonka, at the bottom of Arabat Bay. A little commerce is carried on at this place, and vessels anchor abreast of it at a mile from the shore in about 22 feet water over a muddy bottom, but the bay is much exposed from the N.W. to the N.E. The sandy coast terminates at Arabat, and bends round to the N.E. by E. $\frac{1}{2}$ E. for 13 miles to Kiten Point; it then trends to the N.E. by N. for nearly 7 miles to Kazantip Point, which forms the northern extremity of a

*Arabat Fort and Bay.**Kiten Point.**Kazantip Point.*

Anchorage. little peninsula projecting into this sea from the Krimea. It is of moderate height, and bold to approach, and its eastern extremity affords shelter against N. and N.W. winds in from 15 to 20 feet water over a muddy bottom.

Chagani Point. 139. Chagani Point bears E.S.E. $\frac{3}{4}$ E. 9 miles from Kazan-tip, and between them the coast falls back 5 miles to the southward, and forms a deep bay carrying a depth of 25 feet over a muddy bottom at a mile from the shore ; it is bordered by a beach, and is exposed to N.W. and N.E. winds. From Chagani Point the coast trends to the eastward, and as far as Kertch Strait is backed by hills.

Bagatubi Point. 140. Bagatubi Point lies nearly 9 miles to the westward of Chagani, and near it is the little salt lake called Chokrak. From thence the coast bends to the southward, and at nearly 2 miles to the eastward is a small elevation connected to the mainland by a strip of sand projecting to the northward ; it is called *Ziuk Point.* Between Chagani and Bagatubi Points the coast throws out a bank 2 miles to the northward, on which are only 9 feet water. A bank also runs out in a N.W. direction for 3 miles from Ziuk Point, with only 15 feet on it and 3 fathoms at its edges, but there is a depth of 5 fathoms between it and Bagatubi Point.

Cape Julia. 141. Cape Julia lies 10 miles to the E.S.E. of Ziuk Point, and between them the coast recedes a little to the southward, and forms two bays, which are separated by Tarkan Point, off which a depth of 5 fathoms will be found at a mile from the shore. From Cape Julia the coast trends to the S.S.E. for 5 miles to Cape Fanár, which forms the western point of the entrance to Kertch Strait. (Art. 106.)

Tarkan Point. 142. The general course steered by vessels after clearing Kertch Strait, and bound for the Gulf of Azov, is about N.N.E. for Bielo-sarai Lighthouse, distant 90 miles. On this course the water will gradually deepen from 5 to 7 fathoms at 40 miles from the strait, but beyond that distance it diminishes successively from 40 to 30 and 29 feet ; at the latter depth a vessel will be about 6 miles to the S.S.W. of the lighthouse.

Along an extent of 60 miles from the strait the bottom will be of mud, but to the northward it will be mixed with sand. To the eastward of this track the water becomes shallower, and on approaching the shore the bottom is composed of reddish shells,

Directions from Kertch Strait to Taganrog.

but to the westward of the track the water is deeper and the bottom mud. After passing the parallel of 46° , many seamen alter their course to N. by E. $\frac{1}{4}$ E. or N. by E., not only to avoid the Jezein Bank and Elenia Spit, but also for fear of being driven on the low eastern coast by N.W. winds, which are very frequent in this sea.

When Bielo-sarai Lighthouse bears north 3 miles, a vessel will be in 25 feet water, and should steer E. $\frac{3}{4}$ N. about 35 miles, which will lead through the basin of Mariupol, and to the southward of the Krivaia Light-vessel. On this course she will carry the depths of 25, 30, 33, 30, 25, 23, 22, 20, 18, and 22 feet, and pass into the basin of Sazadnits between the light-vessel and the black beacon on the extremity of the Sazadnits Bank. When the Krivaia Light-vessel bears about W. by N., or the beacon S. $\frac{1}{2}$ W., steer E. $\frac{1}{2}$ S. 18 or 19 miles (carrying the depths of 22, 24, 25, 24, 20, and 19 feet); and when the Zolotaya or Golden Bank Light-vessel bears N.W. $\frac{1}{2}$ N., steer to the N.E. for 6 miles, when the depth will be decreased to 17 feet. When the Chimbur Beacon bears S. $\frac{1}{2}$ W. a vessel will have entered the Taganrog basin, and should steer E.S.E. $\frac{3}{4}$ E. about 6 miles, carrying the depths of 17, 18, 19, and 16 feet. Vessels of burden anchor here at about 9 or 10 miles to the S.S.E. of Taganrog, but those of light draught continue their course, and when the Petrushin Beacon bears N.W. $\frac{1}{2}$ N. they haul to the N.N.E., carrying the depths of 14 to 10 feet, and anchor according to their draught. The latter depth will be found at 2 miles to the southward of Cherepakha Island.

On the return voyage to the southward towards the strait of Kertch, it will be prudent in unsettled weather to steer a little to the westward of the course, so as not to run the risk of being embayed on the low eastern shore with N.W. winds, which are very prevalent in this sea. On nearing the strait three hills will be recognized, two of which are 6 miles to the W.N.W. of Cape Fanar, the third being the cape itself, which, being seen from a distance, appears separated from the rest of the coast.

*Return Voyage
to the south-
ward.*

The variation of the compass at Kertch was found in May 1855 to be $3^{\circ}45'$ West.

Variation.

CHAPTER V.

THE CAUCASIAN OR EASTERN SHORE, FROM KERTCH STRAIT TO GUNIEH.

Kuban Lake. 143. THE channel leading into Kuban Lake is formed between Bogház Point, which is the extremity of a narrow sandy projection extending three quarters of a mile to the S.E. from the island of Taman, and the N.W. point of the Jimiteia peninsula. It is about 250 yards broad, and has a depth of 19 feet, but with 15, 5, 17, 22, and 32 feet leading from it into the Black Sea, the last-named depth being found at three quarters of a mile to the S.S.W. of the entrance. The Lake is only navigable by flat-bottomed boats. On Bogház Point stands a large building, and the village of that name, and there are 5 or 6 houses on the point of the peninsula.*

Bogház Point and Village.

Foul Ground. In standing towards the Bogház, coming from Kertch Strait, the mariner must be on his guard against the foul ground which extends fully 3 miles off shore to the W.S.W. of Cape Kishla, and described at page 62. To clear the Highflyer and Viper rocks, Cape Taman should be kept open of Cape Panaghia outer islet, nor should a vessel of any draft haul in for the shore until Bogház bears E.N.E., and then great attention should be paid to the lead.

Megæra Rock. In running down the coast towards Jimiteia another dangerous rock was discovered in March 1855, in H.M.S. Megæra, and is named after that vessel. This rock lies $1\frac{1}{2}$ miles from the shore, S. 40° E. (S.E. $\frac{1}{2}$ S.) $4\frac{1}{4}$ miles from the Kuban Bogház, near the north end of the low hill of Jimiteia, a small tumulus-like peak upon which hill bears N. 82° E. (E. $\frac{3}{4}$ N.). It was ascertained by Lieut. Armytage of H.M.S. Viper that this rocky shoal has as little as 2 feet upon it; and Captain Spratt reports that the reef has a double head of 2 and 4 feet water, about a cable's length apart, and consequently breaks with any sea. The rock is steep on the east side, but declines gradually for half a mile to the west and south-westward. To clear the Megæra rock keep Cape Panaghia open of Cape Kishla.†

* See chart of Black Sea, Sheet 6, from Kertch Strait to Fort Anakria.

† See chart of Kertch Strait, corrected to July 1855. Scale m = 0.5 of an inch.

144. The peninsula of Jimiteia is about 15 miles in length, and serves as a dyke to the waters of the Kuban. It takes an E.S.E. direction from Bogház Point, and towards its middle rises a platform of about 3 miles in length, the sides of which are steep and of a reddish tint. At $11\frac{1}{2}$ miles from the Bogház is the fort of Jimiteia, erected to command the road to Taman which runs along this isthmus; it is now in ruins. There is said to be a depth of 4 fathoms along the peninsula at about half a mile from the shore, but great attention must be paid, especially during light and variable winds, as the current which generally runs to the N.W. along the Caucasian coast takes its direction here towards the land; the ground too, as stated above, is rocky and foul. *Jimiteia Peninsula.*

Beyond the peninsula there are several hills and a plain, bordered by a sandy beach, which trends round to the southward, and forms the roadstead of Anápah, the western point of which is comparatively low and flat.* *Current.*

145. The fortress of Anápah occupies the whole southern shore of the roadstead, and lies S.E. by E. $\frac{1}{2}$ E. 20 miles from Bogház. It stands on a projecting crag of the last mountains of Circassia; its surface is smooth, and slopes down a very extended plain, which is prolonged to the north and the east, towards the Kuban. The walls of the fortress, on the side of the sea, are about 425 yards in length, and its entire circumference about three quarters of a league. To the south and west its walls rise from a calcareous, perpendicular rock, more than 60 yards in height. To the north, towards the roadstead, the shore falls; some bastions, and on the side of the plain a ditch lined with stones, defend the fortress, which could not resist a European army. One third of the ground enclosed within the walls is occupied by about two hundred shops, and as many cabins of wood, hurdles, or mud. The population does not exceed at the utmost 2,000 persons. There are some wells of very bad brackish water in the fortress, which is not drunk; that which is used is carried in barrels from a small river called Tughur, which, after having meandered in *Anápah.*

* See Plan of Anápah Bay by Captain Spratt and the officers of Spitfire, April 1855. Scale m = 6·6 inches.

the plain, used some years ago to discharge its waters into the sea at a quarter of a mile from the walls of the place. Mounds of sand have since formed at its mouth, and it is only in winter that it has the power of forcing a passage.

In coming from the southward, Anápah may be easily recognized by the diminished height of the mountains in its vicinity, and by a long white cliff, which extends to the walls; but in approaching it, when at some distance to the westward it is not so easily made out, as several mountains are seen, which completely change the aspect of the country; but their summits gradually disappear as the coast is neared. In standing for the anchorage from the southward a vessel should give Anápah Point a berth of 4 cables' lengths, to avoid a rocky ridge which borders it, and extends to the eastward as far as the second bastion, which stands at two thirds the distance from the point to the beach. A rocky patch, which carries only 8 feet, lies at its northern edge, nearly north 3 cables' lengths from the middle of the wall between the bastion at the point and that at the landing place. It is about $1\frac{1}{2}$ cables in length from east to west, and carries 4 fathoms at its edges. The best anchorage for small vessels is to the north or N. by E. of the gate of the town abreast of the landing place, where there is a depth of $4\frac{1}{2}$ fathoms over mud and sand at a quarter of a mile, 3 fathoms at 2 cables, and $2\frac{1}{2}$ fathoms within a cable's length of the shore. More to the westward the bottom is mixed with gravel. The outer road is exposed from the N.W. to S.W., but the inner anchorage is sheltered from the wind from the latter direction, and also protected from the sea by the foul ground to the westward. The cove between the landing place and the eastern bastion is not deep, but there is from 10 to 12 feet water in it.

*Anápah Point
and foul ground.*

Rocky patch.

Anchorage.

The beach to the eastward of the town is bordered by a bank with 3 fathoms at its edges at 3 cables' lengths from the shore, and small vessels must be careful in standing in, at a quarter of a mile to the eastward of the town, for a bar of sand is formed in the summer season off the mouth of the Tughur River.

Tughur River.

Formerly, a very considerable commerce was carried on at Anápah with the Circassians, which consisted of wheat, rye, butter, furs, wax, and staves. Land winds from the east and

N.E. prevail at night and sometimes are very fresh. Strong sea breezes frequently haul round to the northward towards the land after sunset.*

146. From the small bastion that stands at the southern extremity of Anápah, the coast bends in to the S.S.E., and the shore, which is bold, gradually becomes higher, and terminates in a steep white cliff, the base of which is washed by the sea. It is steep-to, having 4 fathoms at 2 cables' and 8 fathoms at $2\frac{1}{2}$ cables' lengths from the shore.

At $8\frac{1}{2}$ miles to the S. by E. $\frac{1}{2}$ E. of Anápah, is a hill about 280 yards in length, covered with brushwood, the extremity of which is called Utrish Point. It lies between 2 high reddish cliffs, and when seen from the north or south appears like an island, and has often been taken for one, being connected to the mainland by a low isthmus, 350 yards in length, and destitute of vegetation. The point is bordered by a shoal extending about $1\frac{1}{2}$ cables to the westward, but there are 8 fathoms close to its edges. The northern and southern shores of the hill and isthmus are clean, and vessels may obtain shelter in the cove to the northward from south and S.W. winds, and in that to the southward from north and N.W. winds, by anchoring close to the isthmus in 5 or 6 fathoms water with a hawser fast to the shore, as the bank is steep.

147. To the southward of the two reddish cliffs, which back Utrish Point, is seen a third cliff, and then a low wooded shore backed by mountains, which terminates at a little prominence 4 miles from the point, called Issussup, and which has also the appearance of an island when seen at a short distance from the coast. A sunken rock lies abreast of it at half a mile from the shore.

From Issussup the coast bends to the E.S.E., and bold white cliffs reappear at the foot of conical mountains with round summits, separated from each other by narrow valleys. That of DirzÍ is the most remarkable on account of its beauty, and is followed by another steep cliff, and by a smaller one of angular form. The coast from thence trends more to the eastward, and a rich and picturesque valley comes in sight, which is inhabited, and bordered by a beach slightly receding to the

* See plan of Anápah.

- Ozersik.* northward. It is called Ozersik, and is 13 miles from Utrish Point. It has a safe roadstead, sheltered from the W.N.W. to the E.S.E. round by the north. There is from 8 to 4 fathoms over good holding ground, at 1 or $1\frac{1}{2}$ cable's lengths from the shore. From Ozersik the coast trends to the E.S.E. to Miskak Point, which lies at the foot of a steep and elevated mountain. At its base to the eastward is the valley of Miskak, abreast of which a vessel may anchor sheltered from all winds from the west to the E.N.E. by the north. The shore from thence is low, and runs to the E.N.E. to a small point, beyond which there is a lake and the low sandy point called Sujak, which forms the western side of the entrance to Sujak Bay.
- Miskak Point.*
- Miskak Valley.*
- Anchorage.*
- Sujak Bay.* 148. The entrance to Sujak Bay lies between Sujak and Doob or Dúb Points, which bear N.W. $\frac{3}{4}$ W. and S.E. $\frac{3}{4}$ E. from each other, distant $4\frac{1}{2}$ miles. The bay is about $7\frac{3}{4}$ miles in depth to the N.W. by N. from Doob Point to the circular beach at its head, and which fronts a large wooded valley watered by the little rivulet of Tsemese, the waters of which rarely reach the sea. Its western shore is of moderate height, and at a good mile from Sujak Point, and to the northward of the lake will be seen a ruined Turkish fort, and near the beach at the head of the bay the town of Novo-rossiusko, which occupies the space of 1,200 yards of the shore. The quarantine establishment stands to the southward of it.
- Tsemese rivulet.*
- Novo-rossiusko.*
- Dúb Point.* On the eastern shore Dúb Point is very remarkable, being at the foot of a mountain of moderate height, and surrounded by white and angular cliffs. A valley to the northward separates it from the ridge of the Bargada mountains, which rise to the height of 1,000 feet, and which border the bay to the N.E. Kabardinskoi fort stands at the head of a little bay formed by the coast receding to the eastward at $1\frac{1}{2}$ miles to the N.E. by E. of the point.
- Bargada mountains.*
- Kabardinskoi Fort.*
- Sujak Point and Reef.* A reef extends to the S.E. from Sujak Point, having only 3 fathoms over it at half a mile from the shore. That depth will also be found in the same direction at three quarters, and 5 fathoms at a mile from the point. The Russians have placed a black buoy to the S.E. in 10 fathoms.
- Black Buoy.*
- Reef in mid-channel.* In mid-channel, and just within the entrance of the bay, lies a bed of sunken rocks, about $1\frac{1}{4}$ miles in extent from north to south, and the same distance from east to west. It carries the

depth of from 10 to 3 fathoms; the latter depth borders a rocky patch rising near its south-eastern edge, which is about a third of a mile in length from N.W. to S.E. From its centre Dúb Point bears S.E. $\frac{1}{2}$ S. $2\frac{1}{4}$ miles.

After passing Sujak and Doob Points, the shores of the bay are clean, and are bordered with the depth of 5 fathoms at about a quarter of a mile from the coast, with the exception of a small oblong reef, which lies $1\frac{1}{4}$ miles to the N.E. by N. of Dúb Point, at a quarter of a mile from the shore, and to the W.N.W. of Kabardinskoi fort, abreast of where the coast becomes bold and steep. It is about a quarter of a mile in length from north to south, and carries a depth of from $1\frac{1}{2}$ to 3 fathoms.

In standing for the bay steer for Dúb Point, which is safe to approach, and may be rounded at 3 cables' lengths, where there is a depth of 10 fathoms. After passing the point, steer for the tomb of a Circassian prince, which lies to the N.E., at the base of the Bargada mountain ridge, and $1\frac{1}{4}$ miles from Kabardinskoi fort. A vessel may anchor either in the little bay to the northward of Dúb Point in from 5 to 10 fathoms over sand and mud, at about half or three quarters of a mile from the shore, abreast of the fort, or proceed on to the anchorage off the town, keeping the eastern shore aboard within three quarters of a mile, to avoid the sunken reef in mid-channel. Vessels anchor abreast of the town in about 7 or 8 fathoms water over mud and sand, at about half a mile from the shore. At about a quarter of a mile from the town the bottom is of sand, small stones, and shells; at a cable's length there are 16 to 18 feet, and 6 to 7 feet close to the shore. Six mooring buoys have been placed in two parallel lines for ships of war. Merchant vessels are allowed the use of them by paying a fee. This anchorage is considered very dangerous, on account of the N.E. winds, which are prevalent from the month of September to the beginning of April; it sometimes blows with the fury of a hurricane, and rushes down from the summit of the Bargada ridge with such violence, and causing such a sea, that vessels are driven on shore or founder at their anchors. These tempests are preceded by clear weather and by small white flaky clouds above the mountains.*

Reef.

Anchorage.

Novo-rossiusho anchorage.

Mooring buoys.

* See plan of Sujak Bay. Scale m. = 1·2 inches.

149. The long range of angular cliffs which border Doob Point is broken at $4\frac{1}{2}$ miles to the S.E. by the creek of the village of Natukhaj, called Ashambéh. The coast then trends more to the eastward, but gradually lessens in height as far as the entrance of Ghelenjik Bay. A small reef extends about three quarters of a cable's length to the westward, from an angle of a cliff not far to the southward of Ashambéh Point.

150. The entrance to Ghelenjik Bay is about a mile in breadth, and formed to the N.W. by a low point, and to the S.E. by Tliuvieuse Point, which is of moderate height, of a level surface, and without vegetation. A long range of white cliffs extend from this point to the S.E. by E., towards Mezip, six of which are of a semicircular form.

The low western point of the entrance is bordered by a bank, the southern projection of which is marked by a black beacon, placed in 40 feet water, at a quarter of a mile from the shore. The northern projection has some foul ground on it, and extends farther into the bay, having only 3 fathoms at 3 cables' lengths from the shore. A white beacon is also placed at a quarter of a mile to the westward of Tliuvieuse Point, in 6 fathoms, outside the reef which borders it. There is a depth of $2\frac{1}{2}$ to 3 fathoms between the reef and the shore.

The interior of the bay is of an oval shape, of about $2\frac{1}{2}$ miles in breadth from N.W. to S.E., and $1\frac{1}{2}$ miles deep. It carries a depth of 8 fathoms at its entrance, and 5 to 6 fathoms in the middle, over sand and mud, which gradually shoals to the depth of 3 fathoms towards the shore, which is bordered by a bank of sand. The fort lies on the south-eastern shore.

The bay is open from the W.S.W. to the S.S.E., but the winds from that quarter are not dangerous. The N.E. winds, although more frequent and violent than in Sujak Bay, are less feared, as the entrance is open, and vessels anchored in the middle of the bay can slip and stand out to sea. It may here be noticed that the wind blows with more violence in front of the ravines which lie between the Bargada mountain ridge than at their projecting points. Vessels intending to remain any time at anchor should moor with their large anchor to the N.E. There is good anchorage for those of light draught abreast of the landing-place, in 12 or 13 feet water.*

* See plan of Ghelenjik Bay. Scale m. = 1 $\frac{1}{2}$ inches.

151. The valley of Mezip lies about 5 miles to the S.E. by E. *Mezip Valley.* of Tliuvieuse Point, at the extremity of the white cliffs. It is called by the Turks, Yalanji Ghelenjik (False Ghelenjik); shelter may be found in the roadstead from the N.W., round *Anchorage.* by the north to the south, in about 4 fathoms. Another white cliff will be seen at Kopitsayi, which is $7\frac{3}{4}$ miles to the S.E. $\frac{1}{4}$ S. *Kopitsayi.* of Tliuvieuse Point. This is followed to the S.E. by the valley of Jankhopi between two bold reddish cliffs, and then *Jankhopi Valley.* a projecting point called Cape Idokopas.

As a general rule, the coast of the Caucasus is bold to *Depth off the Coast.* approach, with the exception of a few points which will be hereafter noticed; the average depths being 6 fathoms at 3 cables' lengths, 8 fathoms at 4 cables', and 10 to 12 fathoms at half a mile from the shore.

152. Capè Idokopas is one of the most projecting points of *Cape Idokopas.* the coast; its summit is flat and covered with pine trees, some of which hang over the red cliffs. It is bordered by a reef, and should be given a berth of a quarter of a mile. From the cape the coast continues to be bordered by roundish cliffs, and trends 9 miles to the E.S.E. to Chuko Point. Between the last of these cliffs and the point lies the valley of Pshad, where *Pshad Valley.* the Russians have constructed a small fort, called Novo Troitskoi *Novo Troitskoi Fort.* (New Trinity). The anchorage is abreast of the valley, which is fronted by a beach; but it is exposed from the S.E. by S., round by the S., to the W. by N. $\frac{1}{2}$ N. A depth of 4 to 5 fathoms, over mud and sand, will be found at $1\frac{1}{2}$ cable's lengths *Anchorage.* from the shore. Care must be taken to avoid some sunken rocks which lie at about three quarters of a cable's length from *Sunken Rocks.* the shore, off the mouth of a small rivulet, backed by a mountain which bounds the valley to the northward, and also off a small point on the southern shore. *Appearance of the Coast.*

In approaching this anchorage from the southward, Chuko *Chuko Point.* Point will be first recognized, which is of moderate height and of a flat surface, with cliffs of a deeper tint than those of Idokopas, and with a high conical and isolated mountain near it; then Cape Idokopas and the bold circular cliffs, and in the interior a round summit and a peak, and nearer the coast a bare cone, which tops the other mountains.

153. From Chuko Point the coast turns a mile to the N.E. to Beshi Bay, which affords a good anchorage, sheltered from *Beshi Bay.* westerly winds, but open to the southward. From thence it

- Tsuepsin Valley.* recedes to the northward, and trends again to the eastward to Tsuepsin valley, which is 6 miles from the point, off which another anchorage presents itself, but open a little more to westerly winds. At 7 miles to the E.S.E. of Tsuepsin is the anchorage at Jubig, which is formed between two headlands. This part of the coast is fringed with white circular cliffs, the last of them is the headland to the eastward of Jubig, which is bordered by a bank, and must be given a berth of half a cable's length. Shapsuko Bay lies immediately to the eastward of this headland, and fronts a long and wide valley which may be easily distinguished at a distance by a high mountain which backs it to the northward. The valley is watered by a rivulet which empties itself into the sea over a low ground with a considerable beach in its front. Here are several block-houses of a Russian fort, called Tenginskoi, which is constructed on the plain. In this bay, as in almost all the roadsteads on this coast, a vessel should anchor at some distance from the shore, in order to be able to clear it in case heavy weather should come on from seaward. Although this seldom happens, yet it will be prudent not to anchor in less than 5 or 6 fathoms, at about 3 or 4 cables' lengths from the beach. It occurs invariably along this coast, that immediately the sea gets up, the surf is very strong along the beach, and boats cannot approach it.
- Surf along the Coast.*
- Appearance of the Coast.* 154. From Shapsuko the coast changes its aspect, the mountains receding farther from the shore, and their bold slopes wider apart, less regular in form, and much lower.
- Tu Point.* Tu Point lies 10 miles to the S.S.E. $\frac{1}{2}$ E. of Shapsuko, and may be easily recognized by the little isolated mountain, of a conical form named Mount Tu, which rises from its centre, and which stands to the northward of a semicircular cove, of about three quarters of a mile in diameter, at the entrance of a valley. Vessels may anchor here in 5 or 6 fathoms' water between two little cliffs which mark the entrance. They must, however, be given a berth, as they are bordered by sunken rocks, which extend a cable's length from the shore.
- Anchorage.*
- Chardák Point.* 155. The coast from the anchorage at Tu runs to the eastward, and then bends round to the S. by E. to Chardák Point, which lies S.E. $\frac{1}{4}$ S. $8\frac{1}{2}$ miles from Tu Point, and which is immediately followed to the eastward by Tuabs Bay.
- Tuabs Bay.*

This bay may be known by the white cliffs, which are of moderate height, as well as by the Russian fort Veliaminói, which stands on a table-land, and its block-houses may be seen at a great distance from the sea. The roadstead is open to the S. and S.W., but protected from the N.W. by Chardák Point, which projects to the S.W. *Veliaminói Fort.*

156. From Tuabs Bay the coast trends 3½ miles to the S.E. by S., in almost a direct line, to Jobjé Point, which causes a difficulty in recognizing the different localities along its shore. The lofty summit of the mountains which rise on the coast would serve as landmarks, if they were not so often enveloped in fog or clouds. The most southern as well as the most remarkable, from the singularity of its form, is Mount Nugaiguseh. The valley of Psezuapeh may, however, be recognized by Fort Lazarev, which the Russians have constructed on the bank of a rivulet. The tiles of the fort are of a reddish brown, and can be seen through the large trees which adorn the beach between it and the sea. The roadstead is exposed to all sea winds from N.W. to S.E. *Appearance of Coast.*
Mount Nugaiguseh.
Psezuapeh.
Lazarev Fort.
Anchorage.

Subeshik Bay lies nearly 9 miles to the S.E. by S. of Psezouapeh, and may almost be mistaken for it, as the aspect of the beach is the same, and the small Russian fort, called Golovin, which stands here, has very much the appearance of the preceding one. This anchorage is also much exposed. A rivulet flows into the sea here. *Subeshik Bay.*
Golovin Fort.

157. From Jobjé Point, Socha Bitke Point, which is of middling height and rounded, bears S.E. ¼ S. 8 miles. The space which separates them forms a large and verdant valley, intersected by hillocks, and bordered by a beach. Fort Mamai Kal'eh formerly stood here, on the bank of a river called the Psakheh. Another river, called the Socha Psta, finds its way to the sea, a little to the northward of Socha Bitke Point. The Russian fort, named Navaginskoi, stands on an eminence on the shore, between this river and the point, and is commanded by a stone tower, which may be seen from a great distance. Two block-houses are also built near the landing-place. The current is much felt here, running to the northwestward. *Socha Bitke Point.*
Fort Mamai Kal'eh.
Psakeh River.
Socha Psta.
Navaginskoi Fort.
Current.

Socha Bitke Point is followed, for the space of 7 miles to the S.E., by a low and abrupt wooded shore, backed by a mountain called Khukhup. *Khukhup.*

Khosta.

At Khosta, more generally known by the name of Kamisler, where a rivulet flows into the sea a little to the southward of Mustakuba Point, the low land commences, covered with magnificent forests, running down to within 20 yards of the beach, which extends beyond St. Duka Fort. To the south-eastward some lofty mountains are seen.

Mustakuba Point.***Fort St. Duka.***

158. Fort St. Duka (Holy Spirit) lies 11 miles to the S.E. by S. of Socha Bitke Point, and from thence the coast trends nearly $2\frac{1}{2}$ miles to the S.E. to Konstantine Point. The fort stands a little to the northward of the mouth of the Mezumta, a large and rapid river, which runs into the sea from a point to the southward of the fort. Its waters have formed a bank of shingle, which extends a cable's length from the shore, where there is a depth of 5 fathoms.

Mezumta River.***Bank.***

The depths vary considerably to the W.S.W. and S.S.W. of the fort, at from 2 to 4 cables' lengths from the shore, where, from 10 and 20 fathoms, it suddenly deepens to 40 and 50 fathoms over a muddy bottom. The best anchorage is with the fort bearing west, in about 8 or 9 fathoms over sand and mud, at $2\frac{1}{2}$ cables' lengths from the shore, sheltered from the S.E. by the bank formed by the waters of the Mezumta, which flow with great rapidity into the sea.

Konstantine Point.***Mount Ocheten.******Fort Gagri.******Anchorage.******River Bizth.******Pitsunda Point and Bay.***

159. From Konstantine Point the coast trends 11 miles to the E.S.E. to the extremity of Mount Ocheten, which runs boldly into the sea. Its base is bordered by a beach of small extent, on which stands the fortress of Gagri, at the entrance of a narrow pass. The depths here are considerable, and the anchorage indifferent. From the southern side of the gigantic rock of Gagri, a long, low, and woody land trends for 4 miles to the southward, as far as the river Bizth; from thence the coast runs $2\frac{1}{2}$ miles to the S.E. to Pitsunda Point, where, through the trees which cover it, may be seen the dome of an ancient church, built a thousand years ago. This point is safe to approach, and to the eastward of it is a bay which has great reputation amongst the Turks who frequent this coast. The long and wide beach which borders the point to the eastward extends $1\frac{1}{2}$ miles to the northward, as far as a small turning to the eastward, where several white cliffs reappear, and extend in that direction as far as the small point of Abikhu, which bears E.S.E. $\frac{3}{4}$ E., 6 miles from Pitsunda Point. The roadstead formed

Abikhu Point.

between these points has the inconvenience of having too great a depth, for at a short distance from the coast there are from 20 to 25 fathoms, and at a ship's length from 6 to 8 fathoms water. It is also exposed from the S. to E.S.E. There is a better anchorage, which Russian ships of war prefer, abreast of the first small cliff at the bottom of the bay, which is divided into two portions by a narrow gully, in 18 fathoms muddy bottom, good holding ground, and not very shelving. Small vessels may anchor at 1 or $1\frac{1}{2}$ cable's lengths from the shore in 6 or 7 fathoms, but the mud is soft. This is a good anchorage for vessels loading with boxwood, but is inconvenient for those that bring ammunition and provisions for the Russian garrison established near the church. It is said that the sea winds seldom blow home, and that but little inconvenience is felt from the sea that rolls in from that quarter.

160. The small cliffs which border the roadstead of Pitsunda extend a little to the eastward of Abikhu Point; from thence the coast bends round to the southward to Suksu Point, which lies 5 miles to the S.E. $\frac{1}{2}$ E., and forms the roadstead of Bombori. The greater part of the shore of this roadstead is bordered with trees, and backed at a distance by high mountains, remarkable for their being divided into three deep gullies. From some positions may be seen, on an elevation which commands the plain of Bombori, a large and beautiful mansion, the residence of the Prince of Abkhazes, with an ancient church near it, and nearer the sea the dwelling houses of Fort Bombori and part of its suburbs. On the shore are the ruins of a church, a long wooden building, a guard-house, and two or three cottages. Vessels anchor at various distances from the shore; there are 20 fathoms at $1\frac{1}{2}$ miles, and 10 to 12 fathoms at a mile or three quarters of a mile distant, sheltered from the W.N.W. round by the north to S.E. When the surf is not very heavy, they anchor abreast of the guard-house. Here, as elsewhere on the Caucasian coast, the Anatolian coasting craft are hauled up on shore.

161. From Suksu Point the coast becomes very irregular, and trends away to the E. by S. 14 miles; it then bends to the S.E. by S. to Sukhúm Point, which bears S.E. by E. $\frac{3}{4}$ E. $19\frac{1}{2}$ miles from that of Suksu. Nearly midway between these points may be seen, rising near the shore, two beautiful conical

Suksu Point.

Bombori.

Anchorage.

Sukhúm Point.

Psereta. hills covered with wood. On that to the eastward are the remains of some ancient walls and two towers, one of which crowns its summit. This locality bears the name of Psereta, (Ancient Anakonii) which is also the name of the river close to it. A house, occupied by Cossacks, stands near the sea. At 14 miles to the northward of Psereta, between mountains covered with snow, may also be recognized a high vertical rock, surmounted by a peak, and commanding a pass, called by the Turks Piláv Tepehsi, and by the Russians Tseferbeia Shapka. There is an anchorage in the bend of the coast, about 3 miles to the eastward of Suksu Point, called Gudavata, but it is exposed to southerly winds, and only used by Turkish coasters.

Piláv Tepehsi. 162. At Sukhúm Point the coast falls back $1\frac{1}{2}$ miles to the northward, and forms Sukhum Bay, which is the station for the Russian fleet employed on the Circassian coast, and affords a good anchorage. In approaching it from the N.W. or W., a narrow and deep gorge may be seen, bordered by steep precipices, and among their distant summits, white with snow, there is one in the shape of a saddle. Several barracks, standing on an eminence at the foot of the mountains, serve also to point out its position. Coming from the southward toward the bay, the village and fortress of Sukhúm Kaleh may be recognized from some distance, on a plain backed by mountains.

Gudavata anchorage. Sukhúm Point may be rounded close to, as a depth of 30 fathoms will be found at a cable's length from it, but between the point and the fortress, which stands $2\frac{1}{4}$ miles to the E.N.E., there is only a depth of 5 fathoms on the edge of a gravel bank, which borders the bight and extends 4 cables' lengths from the shore, with deep water to the southward of it. The anchorage is in about 6 or 8 fathoms, at 2 or 3 cables' lengths to the southward of the custom-house and to the eastward of the fort, as the depths do not increase so rapidly in this direction, but to the southward of the fort it shelves off very suddenly to 60 fathoms at a quarter of a mile from the shore. Vessels moor with one anchor to the S.W., and the other towards the mouth of the rivulet of Basla, which flows into the sea near the quarantine establishment. The bay is open to S.W. winds, which are seldom dangerous; they, however, send in a heavy swell. The land winds are sometimes troublesome.

Bank.

Anchorage.

Basla Rivulet.

163. At $2\frac{1}{2}$ miles to the south-eastward of Sukhum Kaleh lies the valley of Kelasur. A rapid river runs through it. A Turkish bazaar, backed by a hill on which stands the remains of an ancient fortress, at present the residence of a prince, draws a number of Turkish coasters here for the purpose of petty trade.

Kelasur Valley.

From Kelasur the coast runs to the southward for $7\frac{1}{2}$ miles to Kodor Point, which has given its name to the river which empties itself into the sea close to the southward of it. Care must be taken to avoid a bank which extends two thirds of a mile to the N.W. from the point.

Kodor Point and River.

Bank.

From Kodor Point the coast trends 4 miles to the S.E. by S. to Iskuria Point, which is bold to approach; it then bends again to the eastward for 9 miles to the mouth of the river Tamish, when it takes a S. by E. direction for 56 miles to Fort St. Nikolai.

Iskuria Point.

The whole of the country, commencing several miles to the northward of Kodor Point to beyond this fort, which is the Russian boundary to the southward, is an immense low plain, varied by some slight elevations covered with trees. It is bounded to the northward by the mountains of the Caucasus, the tops of which are always covered with snow, and to the southward by some of the mountains of Anatolia.

Aspect of the country.

164. All the anchorages along this coast are exposed to winds from half the compass, but several of them are frequented by Turkish coasters. The first is that of Ochamcher, the farthest possession of the Prince of Abkhazes, which lies 13 miles from Iskuria Point. The next is abreast of Fort Anakria, which stands 20 miles farther to the southward, where the coast projects a little to the westward, and where the river Engyuri falls into the sea. Mount Olen rises to the eastward of this anchorage, at about 12 miles from the shore.

Ochamcher.

Anakria Fort.

Engyuri River.

165. The town of Redút Kal'eh stands at the mouth of the river Khopi, which discharges itself into the sea at $6\frac{1}{2}$ miles to the S.S.E. of Anakria, and its commercial communications are of some importance. A flag-staff on the southern side points out the fortress, which, if intending to anchor, should be brought to bear a little to the southward of east, distant 2 miles, where there will be a depth of 8 fathoms over a muddy bottom. To the eastward will be seen three small

Redút Kal'eh.

Anchorage.

Olen Mount. hills, one of which, Mount Olen, is more striking than the others, as it resembles a saddle. At this anchorage, with light winds, the vessel will ride to the current, which runs violently to the northward. After severe storms it sweeps along quantities of wood, which float down into the sea from the rivers on the coast. A bar of sand and stones has formed at the entrance of the river, so that flat bottom boats or vessels not drawing more than 5 feet are alone able to pass it, when the depths increase inside. The bar being of a shifting nature, great precaution is requisite in approaching it, and when the sea is rough, the waves being then opposed to the current of the river, it causes a kind of rapid, which makes it impossible for any vessel to force it. This is felt as a great inconvenience, as the surf on the beach prevents goods from being landed outside.

Poti. 166. Poti, which stands at the mouth of the river Rion (ancient Phasis) is 8 miles to the southward of Redút Kal'eh. The white walls of this fortress may be seen from a great distance, contrasted as they are by the green of the trees which surround them. Two small hills also rise to the southward, and Mounts Poti and Olen to the northward. The anchorage is to the W.S.W. of the river, at about 2 miles from the shore, in 10 to 12 fathoms, over a muddy bottom. The Rion, as the Khopi, has a bar of sand and stones at its mouth, but inside the depths increase.

St. Nikolai Fort. 167. Fort St. Nikolai is 16 miles to the southward of Poti, and stands at the mouth of the river Nathaniel, which marks the southern limit of the Russian possessions on this coast. The anchorage here is similar, and as much exposed as those which precede it.*

Kintrish. From Fort St. Nikolai the coast still takes a southerly direction for nearly 6 miles to Kintrish, where the extensive plains of Mingrelia and Guriel give place to the mountains of Anatolia; it then bends round to the westward to Batum, which bears S. $\frac{1}{4}$ W. 37 miles from Redút Kal'eh.

Batum Bay. 168. Batúm Bay or Batoom lies at the extremity of a beautiful and extensive plain, covered with verdant trees and watered by several rivulets. It is backed by terraced mountains, over which the summits of others of still greater height are seen.

* See Black Sea, Sheet 7, Cape Yasun to Fort Anakria. Scale d = 9.6 inches.

To the E.N.E. of Batúm Point is a very remarkable elevation *Batum Point.* rising near the shore, and surrounded by the waters of the river Kareli, which there fall into the sea. Its form is that of a flat *Kareli River.* cone with steep sides, and a large building stands on its summit.

The bay is about a mile in breadth from east to west, and half a mile in depth from north to south : and although the anchorage is far superior to any along the eastern shore of this sea as far as the strait of Kertch, yet the extent of deep water is not sufficient to accommodate a large number of vessels. It is quite sheltered from the W., N.W., and E., and the only winds to be feared are gales from the northward, which are, however, very rare. The heavy surf which then rushes into the bay is broken, and thrown back by the waters of the Saris, *Saris,* the Partskhna, and the Kareli, which fall into the sea *Partskhna,* in this vicinity. The eastern shore of the bay must be *Kareli Bank.* avoided, as it is bordered by a bank of shingle, which extends three quarters of a mile to the northward, and carries a depth of only $2\frac{1}{2}$ fathoms, with 5 fathoms at its edges. There are from 10 to 45 fathoms over mud and sand between it and the point, and 10 to 5 fathoms at half a cable's length from the point. Vessels generally anchor abreast of the town with good hawsers ashore to secure them from the land winds.*

Batúm is irregularly built, it contains a bazár on the west side of the bay, about 60 shops, several coffee-houses, khans and a mosque, all built of wood. This is the readiest point of internal communication with Servia, Georgia and Armenia. Population, about 2,500.

The lowlands which are found near Batúm extend for 6 miles to the south-west, and beyond the mouths of the river Chorúkh, of which they are the alluvions, and from their *Chorúkh River.* marshy nature they render the west side of the bay very unhealthy from July to October. Near the most southern of these mouths stands the town of Gúnieh, which carries on a *Gunieh.* coasting trade. To the south-east is a large valley, through which the river Chorúkh flows, and forms the boundary between the eyalets or governments of Trebizond and Erzerúm, beyond the lowlands the mountains gradually get nearer the shore, and are of considerable elevation; and now and then white cliffs appear.

* See plan of Batúm Bay. Scale m = 2.5 inches.

CHAPTER VI.

THE ANATOLIAN OR SOUTHERN SHORE, FROM GUNIEH TO THE BOSPHORUS.

*General
observations.*

169. THE coast of Anatolia is nearly devoid of ports or harbours, and those that are found are at a great distance from each other, and would offer no security to shipping were it not for the mountains which neutralize the effects of the sea winds, which do not blow home. From this circumstance it offers several anchorages which afford shelter from tempestuous weather, although they have not a tempting appearance. Too much reliance must not, however, be placed on this observation, as in certain localities the shelter of the hills is far from being so good as in others. The westerly winds are the most violent on this coast.

*Makrialos
Kiseh and
Sumla An-
chorages.*

From Gunieh the coast trends to the S.W. by W. for 38 miles to Kiz Kal'ehsi. The anchorages of Makrialos at 6 miles to the S.S.W. of Gunieh, that of Kiseh at 8 miles beyond Makrialos, and that of Sumla at 12 miles farther on, are all more or less exposed to westerly winds. The roadstead called Seïdol is in great repute. It lies 12 miles to the W.S.W. of Sumla, and abreast of Buleb, which is near Athiná and a river of that name. A hill rises to the eastward, and its three sides being perpendicular gives it the appearance of a tableland covered with trees. It is called by the natives Eski Tarabozún (Old Trebizond). Kiz Kal'ehsi follows Athina to the westward, and may be easily recognized by a bold rock near the sea, on which are the ruins of an ancient castle.

Seïdol.

*Buleb.
Athiná River.*

*Eski Tara-
bozún.
Kiz Kal'ehsi.*

Kemer Point.

170. From Kiz Kal'ehsi the coast trends to the W.S.W. for 6 miles to Kemer Point, which projects to the westward; from thence it trends again in the same direction for 12 miles to Piriús Point. In this interval it recedes considerably to the southward, and is backed by very high mountains. The river Askoros falls into the sea at $3\frac{1}{2}$ miles to the eastward of Piriús Point, and the coast between falls back a mile to the southward, and forms the Bay of Rizeh. The vicinity of the town of Rizeh, which lies a short distance from the coast, is very

Askoros river.

Rizeh Bay.

fertile, and produces oranges, lemons, and Indian corn of an extraordinary size. There are 3 fathoms over a sandy bottom, at two thirds of a cable from the shore, and 5 fathoms at 2 cables' lengths. To the northward of the town, towards the point, the bottom is sand and shells, and no mud will be found till within three quarters of a mile of the shore to the N.E. of the town. Piriús Point is surrounded by a reef, which extends a quarter of a mile from the shore. Between the point and the town there is a tower on the shore, and two others on the beach to the eastward. A hill also rises near the beach, with an old tower on its summit.

*Piriús Point
and Reef.*

171. Cape Fiji lies W. $\frac{1}{2}$ S. $6\frac{1}{2}$ miles from Piriús Point, and Cape Erekli W. by S. $13\frac{1}{2}$ miles from Cape Fiji. The coast falls back a great deal to the southward, between the capes, and forms Surmena Bay. From Cape Erekli the coast trends 3 miles to the westward to Falko Point; from thence it again bends to the southward, and then trends to the northward to Kovatá Point, which lies 7 miles to the W. by N. of Falko Point. The roadstead of Kovatá is abreast of the river Drano, which falls into the sea 2 miles to the S.E. of Kovatá Point, and shelters from westerly winds.

*Capes Fiji and
Erekli.*

*Surmena Bay.
Falko Point.*

*Kovatá Point
and Roadstead*

Drano River

From Kovatá Point the coast runs to the N.W. by W. for $2\frac{3}{4}$ miles to Khonsi Point, between which and Kalmek Point, is the bay of Trebizond, or Tarabozún of the Turks. From thence the coast bends to the S.W., and then takes a N.W. direction for 14 miles to Cape Ierós, which forms a useful landmark to vessels bound to Trebizond, as it projects a good deal to the northward, with several white patches in its vicinity. Its shores are irregular and of a reddish tint, and a conical hill rises at its extremity.

Khonsi Point.

Cape Ierós.

172. In coming from sea the town of Trebizond may be recognized to the westward of a valley and a large white cliff. It is built on a rocky table land (whence its name from the Greek *τραπίζα*) sloping somewhat towards the sea. Besides being the port of Erzerúm, Tabríz and Teherán, it has become the chief *entrepôt* between Central Asia and Europe. Its imports in 1852, in cottons, woollens, iron, &c., amounted to 2,241,790*l.*, and 218 vessels entered. The exports are silk, copper, wool, tobacco, shawls, carpets, galls, &c., valued in 1852 at 1,050,526*l.* There are 18 mosques, 8 khans, 5 baths, and

Trebizond.

10 Greek churches. The citadel commands the town and anchorage. Population 40,000. A British Vice-Consul resides here.

Kalmek Point. The roadstead is considered bad, and lies to the eastward of Kalmek Point, which is low and flat, and on which there are several buildings. If the wind be off the land a vessel may pass within a cable's length of this point, but if otherwise, she must give it a berth in standing for the anchorage, as the sea breaks heavily upon it, and some rocks above water, which border it, cause a very awkward swell to roll into the bay some distance to the eastward. The best anchorage is with Kalmek Point bearing about W.N.W. half a mile distant, in from 5 to 7 fathoms good holding ground of mud and sand, and just clear to the eastward of some high land, which causes the land wind in fine nights to come off in strong gusts. It will be necessary to moor with an open hawse to the northward, the anchors laid well apart, and a good hawser and stream anchor out astern. The wind is so variable here, and coming off the land every night, that if the vessel swings she will be continually broadside to the swell, and would run the risk from perpetual changes, of loosening her anchors in the ground, besides the difficulty of keeping a clear hawse. She may hang by her stern anchor without any fear, and at the commencement of a gale from the N.W. the hawser can be veered to allow her to come head to wind. The breeze will soon be over, when it should be hove in again to keep the swell from the northward right ahead.

Eleusa Point. Small vessels generally anchor in the bight of the bay formed between Kalmek Point and a small rocky point called Eleusa, which lies half a mile to the S.S.E. They moor, and lay their N.W. anchor in 3 fathoms over sand and shells, with Kalmek Point a little to the northward of N.W., and with a fort on the beach at the extremity of the town, right astern. This would be the best winter anchorage. At the bottom of the bay the shore is fronted by a beach, on which are some houses, inhabited by potters, called Chumlékchi. To the eastward of Eleusa Point there is another beach, bordering the entrance of a valley, called Dégermén. A rivulet runs into the sea here, over which is a stone bridge with several arches.*

Degermén Valley.

* See plan of Trebizond Bay. Scale m. = 2·5 inches.

173. Platana is a small town lying 6 miles to the westward of Trebizond. Its roadstead is good, and is often resorted to by vessels trading with Trebizond, and is also a good winter anchorage, secure against the sea winds, notwithstanding it is exposed from the N.N.W. to the E. Vessels moor with open hawse towards the shore, as the land winds are very violent. From the depth of 25 fathoms, which will be found at three quarters of a mile to the N.N.E. of the town, the water shoals gradually to 5 fathoms, over sand and mud, at $1\frac{1}{2}$ cables' lengths from the shore.*

*Platana.**Anchorage.*

Sarganá Point lies a good mile to the N. by W. of the town, and is bordered by rocks extending about a cable's length from the shore. The coast from thence trends to the N.W. for 5 miles to Zeitun Point, which forms the eastern angle of the broad promontory of which Cape Ieros is the western (Art. 171.) Another point, called Zeitún, bears W. $\frac{3}{4}$ S. $10\frac{1}{2}$ miles from the cape, and between them the coast falls back 2 miles to the southward. There is good anchorage to the eastward of the point, abreast of the rivulet of Cheshmeh, sheltered from the west round by the south to E by N. Kureli Point is a low projection of the coast to the northward, at 2 miles to the W. by N. of Zeitún Point. Kara Point is also low, and lies 10 miles to the westward of Kureli Point.

*Sarganá Point.**Zeitún Point.**Zeitún Point.**Anchorage.**Cheshmeh**Rivulet.**Kureli Point.**Kara Point*

174. The town of Terebolí stands on three small points, which form two coves, at $5\frac{1}{2}$ miles to the W.S.W. of Kara Point. It exports red wine, copper, wax, silk, and dried fruits, and its population is about 3,000 persons. The western cove is full of rocks, but the other carries a depth of 3 fathoms, and will contain 5 or 6 vessels. It is, however, exposed to the northward. The best anchorage is in the roadstead to the N.E. of the town abreast of the little beach called Khalka Vala, in from 8 to 10 fathoms. The two rocky islets, called the Fouroun, lie abreast of a small projection of the coast at 2 miles to the W. by S. of Terebolí.

*Terebolt.**Anchorage.**Khalka Vala.**Fouroun**Islets.*

175. Cape Zephyros bears W. $\frac{1}{2}$ S. 5 miles from the Fouroun Islets, and between them the coast falls back 2 miles to the southward and forms Zephyr Bay. The anchorage is abreast of the little town of Zephyros, which stands on its western

*Cape Zephyros**Zephyr Bay.**Zephyros.*

* See plan of Platana.

shore, in from 5 to 10 fathoms, over sand and mud, and sheltered from the N.W. to the E.N.E. round by the south. Towards the cape, the shore is bordered by breakers.

Kerasunda. 176. The town of Kerasunda lies 11 miles to the W. by S. of Cape Zephyros, on a small flat promontory which projects in a square form to the northward. It consists of 700 or 800 houses, being inhabited by Turks, Greeks, and Armenians; the latter conduct whatever traffic may belong to the place, which at present is in a ruinous condition. The mountains descend close to the town, which is erected at their feet.

Palamida Reef. A large reef, called the Palamida, lies at a third of a mile to the northward of the northern face of the promontory, from which Cape St. Basili bears W. by N., and the centre of the Puga Islet, which lies nearly 2 miles to the eastward of Kerasunda E.S.E. $\frac{3}{4}$ E. Between the reef and the town there is a depth of 12 fathoms. Vessels anchor in the small bight to the

Demir-kapí Anchorage. eastward of the promontory, called Demir-kapí, at a little distance from the shore, in 12 or 13 fathoms water, and sheltered from W. and N.W. winds, but for fear of the N.E. winds they take the precaution to moor with three anchors to seaward, and two on shore. The surf is also very strong and violent. The bottom is much better in 16 fathoms, and one anchor will be sufficient.

Pugachik Anchorage. At a mile to the eastward of Demir-kapí there is a little projection bordered with rocks, to the eastward of which is another small bight, called Pugachik, where there is anchorage in 10 or 12 fathoms not far from the shore, and sheltered as at Demir-kapí from W. and N.W. winds, having the Puga Islet a mile to the N.E., which makes this a good winter anchorage for three or four vessels, if they are moored.

The western part of the promontory of Kerasunda projects a reef of rocks, which take a westerly and south-westerly direction for a third of a mile. There is an anchorage to the southward called Lonja, or the Bazar, in from 8 to 10 fathoms, but exposed to westerly winds, and with all its faults that of Demir-kapí is to be preferred. Vessels sometimes anchor in the roads to the westward of Lonja, in about 20 fathoms water, off the mouth of the river Batlama.

Batlama River. *Cape St. Basili.* 177. Cape St. Basili is fringed by rocks, and lies $4\frac{1}{2}$ miles to the W. by N. of Kerasunda. On approaching this cape

along the beach the depths will diminish over a sandy bottom. The coast from Cape St. Basili runs nearly in a direct line for 20 miles to the W.N.W. $\frac{3}{4}$ W., and is bordered by beaches as far as the town of Ordú, which is rendered conspicuous by standing at the base of Mount Bos Tepelisi, which backs that anchorage and forms a promontory projecting to the N.E., between the beach of Melete-irmak and that of Pershembeh. The roadstead of Ordú is good, and sheltered from westerly winds, but exposed to those from the north to east. The depths are from 10 to 5 fathoms over mud and sand.

Ordú.
Bos Tepelisi.
Pershembeh.
*Ordú anchor-
age.*

178. At the north-eastern extremity of the promontory there is a steep rock called Buzuk Kal'eh, which forms the southern extremity of Vona Bay, which terminates at Vona Point, $6\frac{1}{4}$ miles to the N.N.W., and affords the best anchorages on this coast. They are exposed from the north to the E.S.E., but little is to be feared from the sea winds, which rarely reach the coast. The land winds, however, are very violent, and vessels must moor with two anchors towards the shore and one to seaward. Most of the vessels belonging to the Anatolian coast, having to winter in the Black Sea, resort to this bay, and there are sometimes 300 at anchor in it.

Buzuk Kal'eh,
Vona Bay.

The first anchorage to the southward, is that in Pershembeh Bight, which is conspicuous by an extensive beach bordering the shore between it and Buzuk Kal'eh. A bottom of sand and shells extends to 3 cables' lengths from the shore, where there is a depth of 5 fathoms, which gradually increases to 20 fathoms at half a mile from the coast, over a bottom of sand mixed with mud. The anchorages, however, abreast of Agsi, at $2\frac{1}{2}$ miles to the northward of Pershembeh, of Keshalah, at three quarters of a mile to the northward of Agsi, and Chesmeh, at $1\frac{1}{4}$ miles to the southward of Vona Point, are much to be preferred. At a quarter of a mile from the shore the depth is 10 fathoms over sand and mud, and a good holding ground. The best anchorage in this bay is abreast of the fountain to the northward of Chesmeh beach.

*Pershembeh
Bight.*
Anchorage.

*Agsi, Keshalah,
and Chesmeh
Anchorage.*

179. Cape Yasun bears W.N.W. $\frac{1}{4}$ W., $5\frac{1}{4}$ miles from Vona Point, and between them the coast falls back a good mile to the southward, and affords an anchorage sheltered from easterly and westerly winds. The cape is low and projects to the northward in the form of a glacis, with a monastery on it. A small

Chesmeh Beach.
Cape Yasun.
Anchorage.

**Khanet
Kal'ehsi Islet.**

islet, with a tower upon it, called Khanet Kal'ehsi, lies near the shore at 2 miles to the westward of Vona Point.

Karejik Point.**Fatsa Bay and
Reef.**

180. From Cape Yasun the coast turns abruptly to the S.W. by S. for $6\frac{1}{2}$ miles, and then curves round to the westward to Karejik Point, which is $10\frac{1}{2}$ miles to the W.S.W. of the cape, forming Fatsa Bay, which takes its name from the small town that stands on the western shore. The Fatsa Reef lies a mile to the eastward of Karejik Point, and is about two thirds of a mile in extent, with 12 fathoms to the northward of it. Very few vessels frequent this bay, as it is open to the northward, and the water deep in it, having 13 to 30 fathoms close to the shore.*

Unieh.

181. The town of Unieh (ancient Enoe) is built in the shape of an amphitheatre, on the eastern declivity of Tashkanah Point, which bears W. $\frac{1}{4}$ N. 17 miles from Cape Yasun. It stands on the western shore of Unieh Bay, and has a handsome appearance, being backed by a range of wooded mountains. The houses are chiefly of wood, and those nearest the sea are erected on stone piers or pillars; but the extreme dirtiness of the streets forms a striking contrast with the singular beauty of the environs. The population is composed almost entirely of Greeks, who are reported to be wealthy, and carry on a considerable traffic with Constantinople and the Crimea.

**Tashkanah
Point.
Unieh Bay.**

Tashkanah Point is bordered by a reef, which extends a good cable's length from the shore. The anchorage abreast of the town is in 5 or 6 fathoms over mud and sand, at about three quarters of a mile from the shore. The depths from this decrease gradually to the town, over a sandy bottom. A vessel should moor with open hawse to the N.E., as the winds from that quarter are dangerous. At a good half mile to the westward of Tashkanah Point, and close to the shore, there is a small islet, with a church on it dedicated to St. Nikoló.†

**St. Nikoló
Islet.****Chaldi Point.****Termeh River.**

182. From Tashkanah Point the shore becomes low and wooded, and bends round to the northward to Chaldi Point, which lies $15\frac{1}{2}$ miles to the N.E. $\frac{1}{2}$ E. There is a good roadstead abreast of the mouth of the river Termeh, which falls into the sea at nearly 4 miles to the southward of Chaldi Point. Vessels

* See chart of Black Sea, Sheet 8; Kerempeh to Cape Yasun. Scale d. = 10 inches.

† See plan of Unieh Bay. Scale m. = 2.5 inches.

anchor in 4 or 5 fathoms over a mud bottom, but they are exposed to the N.E. The coast from Chaldi Point still continues low and wooded, and trends $16\frac{1}{2}$ miles to the W.N.W. to Iris Point; from thence it falls back to the southward, and curves round to the N.W. to Kalion Point, which lies W. $\frac{1}{2}$ S. $13\frac{1}{2}$ miles from Iris Point, and forms Samsún Bay. The river Yeshil Irmak (ancient Iris) falls into the sea at 3 miles to the S.W. of Iris Point.

*Anchorage.**Iris Point.**Yeshil Irmak River.*

183. The town of Samsún (ancient Amisus) is small and unhealthy, and stands on the western shore of the bay, nearly a mile to the southward of Kalion Point, which is a low projection, and remarkable for its brownish appearance. A battery of six guns stands on the point, and to the westward may be seen two conical summits of the Nebiene mountains. The point is bordered by sunken rocks, or the remains of a mole, extending nearly 3 cables' lengths to the eastward, on which the sea breaks heavily at times, and on which several vessels have been wrecked. There are also several rocks along the shore bordering the town, which makes it sometimes dangerous for boats to approach it, but towards the battery to the southward of the town the shore is clean. Vessels anchor abreast of the town in any convenient depth, as there are 3 fathoms over sand at a quarter of a mile, and 6 fathoms over mud at three quarters of a mile from the shore; but this anchorage is only good in summer, as the northerly and north-easterly winds make it dangerous during the winter months. A heavy swell generally sets in, which renders it difficult to ship and land goods; yet it is done in a very expeditious manner, and a flourishing trade exists. The exports are raw silk and tobacco. A British Vice-Consul resides here.*

*Samsún.**Kalion Point and Battery.**Samsún Bay.*

184. From Kalion Point the coast, which is bordered by a beach trends to the N.W. by N. for 15 miles, to the roadstead of Kúmjugaz, which is well spoken of, and lies abreast of the mouth of a large lake. There is a depth of 5 and 6 fathoms water over a muddy bottom at a mile or $1\frac{1}{2}$ miles from the shore, but the anchorage is exposed from the North to the E.S.E. The beach is followed to the northward by low and wooded lands, similar to those already noticed between Chaldi and Iris Points. All this coast is clean, having a depth of 10 fathoms at $1\frac{1}{2}$ to 3 miles from it.

Kúmjugaz Anchorage.

* See plan of Samsún Bay. Scale m. = 2.5 inches.

Injer Point. Injer Point lies 7 miles to the N. by E. of Kúmjugaz, and from thence the coast trends to the N.N.W. and N.W. by W. for 11 miles to Halys Point or Cape Bafrah, where the river Kizil Irmak (ancient Halys) falls into the sea by two mouths. The point is easily recognized by the distance it projects to the northward, and by its being low, and also by the quantity of trees by which it is covered.

Cape Sinúb. Cape Sinúb, or Sinope, lies 39 miles N.W. $\frac{3}{4}$ W. of Halys Point, and between them the coast falls back nearly 15 miles to the S.W., and forms a deep bay. The shore continues low and the lands wooded for 18 miles to the W.S.W. of the point, when the coast becomes bordered with mountains, which take a N.W. direction towards Sinúb.

Gherzeh. 185. The little town of Gherzeh (ancient Carusa) stands at the foot of a high mountain, on rather a low point, which projects a reef a cable's length to the E.S.E. These rocks also border the shore of the town, but do not extend off more than half that distance. The anchorage in this roadstead is said to be safe in from 5 to 7 fathoms, over mud and sand, at about 4 cables' lengths from the shore. A small vessel anchored in 3 fathoms over mud and shells at about 2 cables' lengths to the southward of the town will be sheltered by the point from N. and N.E. winds. Gherzeh trades with Sinúb, in nuts, olives, figs, and raisins.*

Anchorage.

Boztepeh Peninsula. 186. Cape Sinúb is the N.E. extremity of the peninsula of Boztepeh, which projects about 3 miles to the eastward from a narrow isthmus which connects it with the main land, and on which stands the town of Sinúb (ancient Sinope). In whatever direction the cape is approached, it may be easily recognized by the peculiar form of the peninsula, the summit of which is flat and the sides steep. It is about $6\frac{1}{2}$ miles in circumference, and towards the isthmus the declivity is more gentle than on the eastern side. The isthmus is scarcely visible from a distance, so that the peninsula will make as an island.

Boztepeh Point and Rock. A very conspicuous rock rises about 2 cables' lengths to the E.N.E. of Boztepeh Point, which is the south-eastern extreme of the peninsula. The rock is steep-to, with 14 to 19 fathoms water between it and the point. The northern shores of the peninsula are clean, but a vessel in running or turning to windward

* See plan of Gherzeh. Scale m. = 2·5 inches.

along the southern shore must be careful to avoid two banks, *Banks.* which, however, only extend off about half a cable's length. They lie between the ravine in which the village of Adakeui *Adakeui.* is seen, and the isthmus. On this shore there is no other landing place but at the ravine, the rest of it being fringed with rocks.

The town of Sinúb (formerly the capital of Pontus) is *Sinúb.* divided into two distinct parts. The first is the fortress, built on the isthmus, and inhabited by Turks, the walls of which are washed by the sea. The second stands on the slope of the peninsula, and is the residence of the Christians, composed mostly of Greeks. It has a population of about 8,000 persons, many of whom are employed in the dockyards, where several of the finest ships in the Turkish navy have been built, and where merchant vessels can be repaired at a cheap rate.

The roadstead enjoys a good reputation even in winter. Vessels anchor in from 5 to 10 fathoms, over mud and sand, at 2 or 4 cables' lengths to the southward of the town, quite sheltered from westerly and north-easterly gales. The shore can be approached to the depth of 3 fathoms, but the bottom there is foul with the remains of some ancient jetties. The exports are timber, flax, salt, cordage, drugs, dried fruits, fish, oil, wax, pitch, bay leaves, and tobacco, which are brought from the neighbouring districts. Near Sinúb the effects of a current *Current.* running westerly as far as Cape Kerempeh have been experienced, extending only a short distance from the shore, but at a greater distance at sea it sets to the eastward.*

187. The little port of Ak-Liman (ancient Armene) lies *Ak-Liman.* $4\frac{1}{2}$ miles to the W.N.W. of Sinúb, at the extremity of a low and sandy shore, which is backed by mountains bordered by white rocks. It is about half a mile in depth from east to west, and a little more in its widest part from north to south, but the entrance is narrowed to a quarter of a mile by two small islets which lie off the points. That to the northward is bordered by rocks, but the southern islet has a depth of 3 fathoms close to it. The port has 7 to 5 fathoms at a little distance within the entrance, which is open to the eastward, but the interior only carries a depth of 2 and 3 fathoms, and

* See plan of Sinúb. Scale m. = 2·5 inches.

will only accommodate vessels of light draught, which lie sheltered in the northern part from all sea winds. There is 2 fathoms water at a good cable's length from the northern shore, and from the beach at the bottom of the port. This depth will be also found near the southern shore, particularly near the landing place, which has a building on it. The exports are pears, apples, chestnuts, and some timber.*

*Ak-Liman,
Amsoros, and
Pakhios Points.*

188. Beyond Ak-Liman the coast becomes bold and rocky, and trends towards the N.N.W. for 3 miles, forming three points. Between the first, which is that of Ak-Liman, and Amsoros Point, the second, lies a reef at half a mile from the shore; Pakhios Point is the third, and lies N.W. by W. $\frac{1}{4}$ W. 8 miles from Cape Sinúb. From this point Cape Injeh bears W. $\frac{1}{4}$ N. 3 miles.

Cape Injeh.

189. Cape Injeh and Pakhios Point are the most northern points of Anatolia. Their sides are of a reddish tint, and are free from danger. The cape is flat, and looks rather like a bastion. This promontory and that of Sinúb form a very remarkable feature of the coast, dividing the eastern and western parts of Anatolia. It has been before stated that the westerly winds are the most dangerous on the eastern part of this coast, and that N. and N.E. winds do not reach it. Easterly winds are always very light. Fogs also are rare, and the temperature of the atmosphere so mild that the olive and orange tree grow luxuriantly. The western part, as far as the Bosphorus, on the contrary, is cold and chilly, and the winds from west to north and N.E. are accompanied by hurricanes, which occasion numerous shipwrecks and loss of life.

*Winds and
weather on
Anatolian coast.
Fogs.*

Kuildi Reef.

190. From Cape Injeh the coast turns abruptly to the southward and S.W., when it takes a westerly direction to Cape Kerempéh, which bears west a little northerly about 25 leagues from the former cape. A large bed of rocks, called the Kuildi reef, lies S.W. by W. 13 miles from Cape Injeh, and is about 2 miles in length from east to west, and a good half mile in breadth. Its eastern edge is nearly north and south of the valley of Kaza-kildi, which is covered with buildings, and another inhabited valley is nearly abreast of the shoal. Its outer edge is about a mile from the coast. Stephano Point is a small projection of the coast, lying W. by S. 21 miles from Cape Injeh. There

Kaza-Kildi.

Stephano Point.

* See plan of Ak-Liman. Scale m. = 2.5 inches.

is anchorage abreast of the town, which stands to the eastward of the point, sheltered by the point from W. and N.W. winds, but open to the N.E. The depths are from 3 to 5 fathoms, over sand and mud. The buildings on St. Antonin Point stand near the mouth of a rivulet at $6\frac{1}{2}$ miles to the W. by S. of Stephano Point. The anchorage to the eastward of the rivulet is in 3 or 4 fathoms, over mud and sand, but it is exposed to all winds from seaward. The low point of Kinoglu, at nearly 8 miles to the W. by N. of St. Antonin, projects several rocks to the N.E. Vessels belonging to this coast sometimes anchor at Apana, abreast of the mouth of a rivulet and a village which lies 8 miles to the westward of Kinoglu. Ineboli or Niopoli Point lies $11\frac{1}{2}$ miles to the westward of Apana. This point, which is low, projects to the northward and forms a roadstead to the eastward, abreast of the little town of Ineboli, which stands on its south-western shore, where vessels anchor in 3 or 4 fathoms muddy bottom. The point must be avoided, as it projects a reef a good distance to the N.N.E.

*Anchorage.**St. Antonin Point.**Anchorage.**Kinoglu.**Apana.**Ineboli Point.**Anchorage Ineboli.**Reef.**Cape Kerempéh.*

191. Cape Kerempéh, which lies $21\frac{1}{2}$ miles to the westward of Ineboli, is the western termination of the most prominent land of the Anatolian coast, of which Sinúb is the extreme east. This cape, one of the highest in the Black Sea, is bordered by reddish cliffs, and may be easily recognized by vessels coming from the Krimca, from which it is distant 140 miles. These two promontories divide this sea into two parts, the eastern and western, which are often very distinct, by the different winds blowing the same time in each. Cape Kerempéh deserves the name of Spartivento (*Separator of Winds*) which has been given by the Italians to several capes in the Mediterranean; for a strife between the winds is very often observed abreast of it. It is much dreaded by the mariners of Anatolia from the severe tempests which often occur in its vicinity.*

192. From Cape Kerempéh the coast is safe to approach, and trends to the W. by S. $\frac{1}{2}$ S. and W.S.W. for 31 leagues to Cape Babá. Kara-Agach lies 14 miles from the former cape. The village is small, but vessels of considerable size are built here. This anchorage is only used by coasters. A mountain

*Kara-Agach.**Anchorage.*

* See chart of Black Sea, Sheet 9; Bosphorus to Kerempéh. Scale d. = 11 inches.

Mount Fulo. named Fulo rises at $3\frac{1}{2}$ miles to the S.E. The little port of
Kidros. Kidros is $4\frac{1}{2}$ miles to the westward of Kara-Agach, and is
backed by a mountain in the form of a sugar-loaf, which
Anchorage. serves to recognize it. The port is small, and will only ac-
commodate 5 or 6 vessels, which are exposed to northerly winds.
Rock. In entering, keep the eastern shore aboard, to avoid a rock
which obstructs the entrance and makes it very narrow.

Amástrah. 193. The bay of Amástrah is 23 miles to the westward of
Kidros, and is formed between Chakras and the town of
Amástrah (ancient Amastris), which appears at a distance
like a group of islets. The town stands on a double penin-
sula, the first part of which is a quarter of a mile in length
from east to west, and connected with the main land by
a low sandy isthmus of about two thirds of a cable in breadth.
The second part, to the westward, is joined to the first by a
narrow bar, over which the sea breaks in heavy weather. At
a cable's length to the northward of the first peninsula, and
about half that distance to the eastward of the second, there
is an islet of moderate height, with bold and yellow shores.
It is about 164 fathoms in length from north to south, and be-
tween it and the town there is a depth of 10 fathoms; but in
using this channel be careful to avoid a reef which lies very
near the shore in the bight which is formed between the two
peninsulas. The anchorage is to the south-eastward of the
town, abreast of the low sandy isthmus, in from 8 to 3 fathoms
sandy bottom, and protected to the northward by an islet,
which is connected to the eastern part of the first peninsula by
some rocks. The islet projects a reef a cable's length to the
eastward, which serves to break the force of the sea coming
from the N.E. Attention must be paid to avoid the southern
shore of this bay, as a reef, said to be the remains of an ancient
jetty, extends two thirds of a cable's length in an easterly
direction, from a small point lying a quarter of a mile to the
S.S.E. of the town. Another reef, similar to the former, ex-
tends a good cable's length to the northward from the shore,
at a quarter of a mile to the eastward of the former. The
eastern coast of the bay is clean, having 4 to 10 fathoms close
to the shore, over sand and mud.

*Eastern
Anchorage.*

Reefs.

*Western
Anchorage.*

A little cove is formed to the westward of the isthmus, but
the anchorage in it is much inferior to that to the eastward,
and exposed to westerly winds. The entrance, which is about

a cable in breadth, is much narrowed by some rocks which fringe the northern and southern shores. It has from 8 to 2 fathoms in it, over a sandy bottom. The commerce of this place is inconsiderable; only a few productions of Anatolia being exported to Constantinople or the Krimea.*

194. The river Bartheni empties itself into the sea at $7\frac{1}{2}$ miles to the westward of Amástrah, and at $3\frac{1}{2}$ miles to the S.W. by W. of Bartheni Point. There are 3 fathoms near the shore, and the river might receive large vessels but for a bar of sand at its entrance, on which there are only 8 feet. A rock lies on the western side of the entrance, and a shoal on the eastern side. Native coasters go up to the town, which stands at 2 miles from the sea. It exports wax, coarse silk, boxwood, timber, firewood, onions, pears, apples, walnuts, chestnuts, &c. &c. Salt forms the principal commodity of the imports.

*Bartheni Point
and River.*

Bar.

*Rock and Bank.
Bartheni.*

Ghizeljeh Hissar is a small projection of the coast at 7 miles S.W. $\frac{1}{2}$ W. from Bartheni Point, and between it and Philios Point, which lies nearly 8 miles to the W.S.W., the shore is bordered by a beach 6 miles in length. Kilimoli Point, which projects a very little from the coast, is high, and lies 4 miles to the westward of Philios Point, the coast between them receding a little to the S.S.E.

*Ghizeljeh
Hissar.*

*Philios Point.
Kilimoli Point.*

195. The locality of Koslú Bay, which lies $11\frac{1}{2}$ miles to the W.S.W. of Kilimoli Point, is best distinguished by the houses near the shore, there being no other village or similar settlement upon the whole coast between Bender Ereklí and Amástrah. The land about it presents no remarkable object, the coast being generally bordered by high mountains covered with forests.

Koslú Bay.

The bay only affords a summer anchorage for steamers and coasters. The traders resort to it in May for the shipment of coal, and anchor to the N.E. of the valley, the wind being generally to the eastward of N.E., so as to get better shelter from the point. The bottom is sand, under the depth of 12 fathoms, and mud and sand in deeper water. The extreme west cape, kept open of Alesso, will lead to a good berth at a quarter of a mile from the shore; but to expedite the embarka-

Anchorage.

* See plan of Amástrah. Scale m. = 2·5 inches.

tion of coal, a nearer berth may be taken. During the month of May the coast is sometimes visited with a gale from the N.N.E., which on one occasion caused the wreck of 8 or 9 vessels ; but during the months of June, July, August, and September it is said to be perfectly safe.

Coal Mines.

Captain Spratt also remarks—"The chief locality for good coal is at the valley of Koslú, where the Turkish government have an establishment under the direction of two civil engineers. There are nine seams of coal, but only four at present worked, which, with the present means at the command of the engineer, will supply 2,500 tons per month. The thickest of these seams is 18 feet, and the least about 3 feet. A tramroad leads from all these mines to the shore ; the extremity being carried out upon the east point of the bay, to enable boats to lie under 8 or 9 shoots, and receive the coal direct from the trucks. According to the statement of the engineer, 300 tons can be shipped per day, weather permitting. Some of the mines penetrate 300 or 400 yards into the mountain.

"The coal of three heaps now lying in the valley have a close resemblance to each other, and in the furnace, either for steaming or economy, have no appreciable difference ; the whole being very like Newcastle coal in weight and appearance also."*

Cape Babú.

*Bender Ereklí
Light.*

196. From Koslú Bay the coast trends $16\frac{1}{2}$ miles to the W.S.W. to the promontory of Cape Babú, which is faced with rocky cliffs, and rendered remarkable by the coast turning abruptly to the southward. A Light Tower about 60 feet high stands on its summit, and being white is very conspicuous. It exhibits a fixed pale light, at 657 feet above the sea, which may be seen in clear weather at the distance of about 8 or 9 miles.

*Bender Ereklí
Bay.*

The bay of Bender Ereklí, which lies to the southward of Cape Babú, and formed by the coast falling back a mile to the eastward, is about $2\frac{1}{2}$ miles in length from the cape to Kara Sakal, its southern point, and carries a depth in the middle of 7 fathoms, over sand and mud, gradually shoaling to the shore.

Bender Ereklí.

The town of Bender Ereklí (ancient Heraclea) stands on the

* (Art. 195.) Remarks by Captain Spratt. See also plan of Koslú Bay, by the officers of the Spitfire, 1854. Scale m. = 4·5 inches.

N.E. shore of the bay, at three quarters of a mile to the eastward of the cape, and was formerly of considerable extent and had a large population ; there was a castle and a mole, both of which are now in ruins. The remains of the ancient mole is *Ancient mole.* about $1\frac{1}{2}$ cables in length, and extends in a S.S.W. direction from a 6-gun battery which stands on the shore, at about three quarters of a mile to the E.S.E. of the cape. There is a depth of 4 fathoms at 2 cables' lengths to the S.E. by E. of the mole, at a cable from the shore, where small vessels may anchor *Anchorage.* sheltered from W.N.W. round by the north to S. by W., but the anchorage to the N.W. of the mole, between the town and Cape Babá, is to be preferred, where small vessels may lie sheltered from westerly winds in 3 or 4 fathoms, over mud and sand. The S.W. winds are not dangerous, as, the coast not being far off in that direction, the fetch of the sea is not very great. The anchorage for larger vessels is in about 6 fathoms, at 4 cables' lengths to the E.S.E. of the cape.

"The bottom in Bender Ereklí Bay is clay and sand, affording good holding ground, but it is not a safe anchorage against a W. or N.W. gale, unless a vessel is anchored well up in the bay, between Cape Babá and the ancient mole, so as to obtain some shelter from those winds. Country vessels lie moored head and stern here during the whole winter, and are said to be perfectly safe from every gale, although exposed to some fetch from the S.W. The S.W. gales seem not to blow home, or to endanger a vessel with good ground tackling.

"At the present time (March 1854) there are two parcels of *Coal.* coal, one of 450 tons and the other 200 tons lying at this place. The former is coal procured by the Croats, and of an inferior quality. The small parcel of 200 tons is from a seam recently opened by the Turkish government, at about 9 miles from Bender Ereklí and one from the sea, and is equal to that obtained at Koslú valley. During the year 1853, 50,000 tons of coal were exported from this district. Caiques are employed during the winter, when the weather permits, to bring coal to this bay from all the valleys where it is piled."*

197. Kirpen Point bears nearly due west 51 miles from Cape *Kirpen Point.*

* Remarks by Captain Spratt. See also plan of Bender Ereklí, by the officers of the Spitfire, 1854. Scale m. = 4·5 inches.

- River Melen Sú.* Babá, and between them the coast falls back 11 miles to the southward and forms a deep bay. To the westward of the river Melen Sú, which flows into the sea at 24 miles to the W.S.W. of the cape, the coast is backed by mountains, and fronted by a beach 27 miles in length, which terminates at Chalbi Point, where the mountains again border the shore. The mouth of the river Sakariyeh is 13 miles to the westward of the Melen Sú.
- Beach.*
- Chalbi Point.*
- Sakariyeh River.*
- Appearance of the Coast.* From the distance of 10 miles to the northward of Kirpen Point may be seen, in clear weather, a high peaked mountain a good distance to the westward; the summit of another mountain to the S. $\frac{3}{4}$ E.; a third, quite isolated, to the S. by W. $\frac{1}{2}$ W., and
- Mount Kandrú.* Mount Kandrú, with two peaks, to the S. by W. $\frac{2}{3}$ W., and backing the anchorage of Kirpen. These observations may be useful, as the land in the vicinity of the point is said by some mariners to resemble the entrance of the Bosphorus, and may be mistaken for it.
- Kirpen Island.* 198. Kirpen Island is of moderate height, and lies about 2 cables' lengths to the northward of Kirpen Point, with a small islet close to the westward of it. A little bay named
- Kefken Bay.* Kefken is formed between Kirpen Point and a point 2 miles to the W.S.W. A small rock lies above water a little to the eastward of the latter point, and a shoal at $1\frac{1}{4}$ miles to the S.W. by W. $\frac{1}{2}$ W. of Kirpen Point. The islands and point are safe to approach, and vessels anchor near the latter, protected by the islets from northerly and easterly winds, in from 6 to 7 fathoms water; they ride with an anchor to the N.W. and lawsers on shore. To the S.W. of the bay the coast forms a little creek,
- Creek.*
- Kerneh Bay.* which is not navigable. Kerneh Bay lies half a mile to the southward of this creek, and carries a depth of 3 and 4 fathoms. It affords shelter from the northward, and small craft protect themselves under a low point from westerly winds. A bold headland separates Kerneh Bay from another bay to the S.W., called Kirpen, which is about three quarters of a mile in length from east to west, and much preferred to the preceding ones.
- Kirpen Bay.*
- Rock.* In rounding the headland give it a berth to avoid some rocks which lie a little to the southward of it, and anchor in 7 to 8 fathoms, sheltered from N. and N.W. winds, and exposed only to the westward.

199. From Kirpen Bay the coast trends to the W. by N. for

25 miles to Kilí Point, which is low, and surrounded by a cluster of rocks, on one of which stands a tower. The small town of Kilí stands on the point. Another tower stands on Bashna Island, which lies close to the shore, at nearly 4 miles to the westward of Kirpen Bay. To the westward of Kilí the coast is fronted by a beach 11 miles in length, which terminates at a bold and projecting point, called Kara Burnú (false entrance), which bears W.N.W. $\frac{1}{4}$ W. nearly 12 miles from Kilí Point. A small promontory, called Riba, which may be known by a white cliff, lies 7 miles W. of Kara Burnú, or Black Point, and half a mile to the westward of a islet which is very conspicuous. The promontory shelters the roadstead of the little town of Riba from N.E. and E. winds. The anchorage is abreast of the beach to the westward of the town, in from 3 to 5 fathoms, over a sandy bottom. A small rivulet flows into the sea at the eastern end of the beach, and a rock rises close to the shore at three quarters of a mile to the westward of Riba.

*Kilí Point and Tower.**Kilí.**Bashna Island and Tower.**Beach.**Kara Burnú.**Riba.**Islet.**Roadstead.**Rivulet.**Rock.*

Cape Anadolí lies about 2 miles to the westward of Riba, and three quarters of a mile to the N.E. of Anadolí Lighthouse, and forms the eastern point of the entrance to the Bosphorus (Art. 5.)

Cape Anadolí.

Before finishing this work, it may be useful to say a few words about making the Bosphorus, when returning from the Black Sea, as the rate of the currents, which always set to the southward, varies according to the season and the weather; and in coming from the southern Krimea, or from the eastward, they will deserve attention.

General Remarks on making the Bosphorus.

In the autumnal and winter months, the greater part of the vessels coming from Odessa, and even from the Krimea, or from the Sea of Azov, to Constantinople, approach the coast of Bulgaria to get a sight of Cape Kaliakra. There are some which make sure of their object by sighting in succession Cape Eminch, Mount Babá, and Cape Kuri, and when the weather is foggy and menacing, they remain either at Kávarnah, Sizopoli, or in Yniada Road, till it becomes more favourable.

After making out the mouth of the channel steer for its western shore, which is higher than the eastern, and is seen from a greater distance. Moreover, the eastern coast should be avoided, because the current sets right upon it, and the great depth of water affords no good anchorage in case of bad

weather. On clear days the mountains of Mal-tepeh and the Two Brothers in Asia are visible at a distance of 30 miles, and from almost any position in which a vessel may be. Seven red cliffs also on the coast of Europe, beyond Molos, and one white cliff in Asia are likewise good marks, even during fogs, as they seldom quite obscure the base of the mountains. On the summit of the high land behind Rumilí Lighthouse, on the European shore, a conspicuous tree is seen at 20 miles from the N.N.W., and on nearing the channel a forest and an old tower may be observed on a hill in Asia. All these marks are lost to the seaman when the northerly gales throw a thick veil of fog over the shores of the Bosphorus ; but if heavy guns were fired night and day from one of the forts, at certain intervals, during the bad weather, they would be of great service in pointing out the direction of the strait. The land is seldom sighted on the Asiatic coast, between Capes Babá and Anadolí, as it affords no good anchorages, and vessels run the risk of being driven on shore by north and north-easterly winds.

During the night great care is requisite not to confound the two lights at the entrance of the channel with the lights of the coast, (Art. 5,) for although their range is said to be 18 miles, they are generally badly attended, and seen with difficulty.

Soundings are likewise a good guide to find the vessel's position on nearing the Bosphorus, and recourse should always be had to the lead, especially in foggy weather or in the night. When at the entrance in mid-channel the bottom is hard mud ; but she will be too far to the westward if the lead brings up white sand mixed either with small stones or black spots, and too far to the eastward if it shows white sand mixed with broken shells.

In the daytime the difference between the two lighthouses will also be a guide to distinguish the entrance of the channel when within a short distance of it, that in Europe being formed by a double tower, or two towers of different diameters, one above the other, while that in Asia is a single tower.*

The following remarks are by Mr. George Johnson, Master commanding H.M.S. Apollo, in 1855.

* See view on General Charts of Black Sea.

The coast in the vicinity of the N.E. entrance of the Bosphorus between Kara Burnú on the Asiatic, and Kilios, on the European shore, partakes very much of the same features; rocky, with red and brown cliffs. From Cape Anadolí to Kirpen Island, in an extent of 17 leagues, there are only two or three small sandy bays which are scarcely seen at a little distance from the shore; but on the European side, between Kara Burnú and Cape Serveh, in a distance of 11 leagues, are several large sandy patches (about 5 in number), the westernmost of which is the most conspicuous and considerable, with several dark rocks off it.

The land immediately over Rumilí Lighthouse is moderately elevated, and gradually and evenly slopes to the north-westward towards Cape Serveh, without any visible interior high land. At the back of Anadolí Lighthouse rises a high and long table land, extending in an easterly direction, and beyond it are three isolated mountains, the westernmost of which is the most remarkable, and called the Brothers; farther eastward will be seen a high mountainous ridge, jagged and notched, and from Kirpen Island much smaller jagged hills extend inland towards the higher notched mountains.

If high interior land is seen, and no sandy hillocks in sight, it will be the Asiatic shore, but on the contrary, if sandy bays with the sand extending some distance inland are recognized with no interior high land or mountains, it will be that of Europe, and the first fall of land gradually sloping to the N.W. will be Cape Rumilí.

For the navigation of the Bosphorus the seaman is referred to the "Sailing Directions for the Dardanelles, the Sea of Marmora, and the Bosphorus," a work lately published by the Admiralty.

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